

City Council

Special Meeting Agenda

Monday, November 25, 2019

**Library Meeting Room
951 Spruce Street**

2:00 PM

- 1. CALL TO ORDER**

- 2. DISCUSSION/DIRECTION – WATER TAP FEE CALCULATION & APPROVAL PROCESS**
 - Staff Presentation
 - Public Comments (Please limit to three minutes each)
 - Council Questions & Comments

- 3. ADJOURN**

Citizen Information

If you wish to speak at the City Council meeting, please fill out a sign-up card and present it to the City Clerk.

Persons with disabilities planning to attend the meeting who need sign language interpretation, assisted listening systems, Braille, taped material, or special transportation, should contact the City Manager's Office at 303 335-4533. A forty-eight-hour notice is requested.

**SUBJECT: DISCUSSION/DIRECTION – WATER TAP FEE CALCULATION
AND APPROVAL PROCESS**

DATE: NOVEMBER 25, 2019

**PRESENTED BY: HEATHER BALSER, CITY MANAGER
KURT KOWAR, PUBLIC WORKS DIRECTOR**

SUMMARY:

At the November 4, 2019 City Council meeting Council requested additional information about the establishment of City water tap fees. Attached is a presentation with more background on the City's water sources, planning efforts, tap fee methodology and how it was developed, and surrounding community tap fee rates. In addition, staff has provided some options for City Council regarding the proposed increase to tap fees below.

Pursuant to Section 13.12.040 of the Louisville Municipal Code, the City Manager has the authority to establish City water tap fees. The ordinance establishing this rule is also attached.

Attached is the packet from November 4th, 2019, with the City Council approved Resolution No. 38, Series 2019, Setting Certain Fees, Rates and Charges for 2020. As in past years, staff also provided City Council with the City Manager approved fees, rates and charges for informational purposes so that Council would be aware of all City fee changes for the upcoming year. Among the City Manager approved fees are the City tap fees, which consistent with the City ordinance and policy, are adjusted based on CBT (Colorado Big Thompson) water sale prices. The proposed tap fees were previously discussed and recommended for approval by the Utility Committee and the Finance Committee but due to the significance of the increase based on the current formula, City Council requested further discussion about the process, methodology and other potential options for setting the fees.

How Water Tap Fees are Established

- Section 13.12.040 of the LMC requires the City Manager to establish a table of City water tap fees annually
- Tap fees are computed by reference to the provisions of Chapter 13.12 of the Louisville Municipal Code.
- Based on City staff's computation, City Manager establishes the tap fees
- Tap fees are set forth in a table of fees

How Water Tap Fees are Calculated under Chapter 13.12

- From LMC § 13.12.040.A.3:
 - “Tap fees shall be based on and used for growth related capital expansion costs for water resources, water supply, water storage, transmission, treatment and distribution facilities, related costs and factors”
 - “The tap fees shall reflect the City’s overall costs incurred to provide services for which the tap is requested and for which the tap fee is designed.”
- So when the cost of one of those factors, such as the water resource (in this case CBT), sharply rises, this will cause a sharp rise in the tap fee
- Tap fees are paid by new users on the system, so the tap fee must reflect the rising cost of the water resource in order to properly account for the City’s overall costs incurred to provide water service to these new users as required by the Code.

City Council Options

- Take no action. Water tap fees set by the City Manager will go into effect as set forth in the current table on page 9 of 11 of Fees Established by City Manager and will become effective three months from the date of approval.
- Pursuant to Section 13.12.040.A.4 of the LMC, City Council may by resolution call up a current table of tap fees adopted by the City Manager and require adjustments that are consistent with Chapter 13.12
 - These changes would remain effective for the balance of the calendar quarter
- City Council could amend Section 13.12.040 to change how tap fees are established

The City Manager has been establishing water tap fees for almost 20 years. The methodology for the calculation changed in 2013/2014, however the fee established by the City Manager has always been “based on and used for growth related capital expansion costs of water supply, water storage, transmission, treatment and distribution facilities, related costs and factors.” (see Section 3 of Ordinance No. 1339, Series 2000 – this language is the same as in current 13.12.040.A.3).

FISCAL IMPACT:

The tap fees impact help support the City’s cost to purchase water, as well as the costs associated with water facilities and capital projects, such as pipes, water treatment, water storage, and water pumping.

PROGRAM/SUB-PROGRAM IMPACT:

This item impacts the Utilities program area, Water sub-program. Tap fees help the city fulfill the goal of ensuring safe, reliable, great tasting water.

RECOMMENDATION:

Staff recommends continuing to apply the existing tap fee methodology, or City Council provide discussion and direction on a preferred alternative approach.

ATTACHMENT(S):

1. Tap Fee Power Point
2. Ordinance NO. 1339, Series 2000
3. November 4, 2019 Packet Agenda Item on Fees and Fines
4. 2016 Water Master Plan
5. 2015 Water Efficiency Plan
6. Link to [LMC Section 13.12.040](#)

STRATEGIC PLAN IMPACT:

<input checked="" type="checkbox"/>	 Financial Stewardship & Asset Management	<input checked="" type="checkbox"/>	 Reliable Core Services
<input type="checkbox"/>	 Vibrant Economic Climate	<input type="checkbox"/>	 Quality Programs & Amenities
<input type="checkbox"/>	 Engaged Community	<input type="checkbox"/>	 Healthy Workforce
<input type="checkbox"/>	 Supportive Technology	<input type="checkbox"/>	 Collaborative Regional Partner

Special Meeting Tap Fee Discussion

November 25th, 2019



2019/2020 Budget

“Ensure safe, **reliable**, great tasting water; properly treated wastewater; effective stormwater control; successfully managed solid waste; and **competitive prices for all services.**”

~ Utility Goals

“Consistently provide safe and great tasting water, routinely testing quality for compliance with State and Federal Standards. Operate and maintain facilities efficiently, allowing for **reasonable** and **equitable rates** while maintaining optimal quality.”

~ Water Utility Objective

Strategic Plan

Values

Innovation

Leading and embracing change and transformation through creative thinking, learning, and continuous improvement.

Collaboration

Proactively engaging colleagues and other stakeholders in developing solutions through open communication.

Accountability

Fulfilling our responsibilities, owning our actions, and learning from our mistakes.

Respect

Treating people, processes, roles, and property with care and concern.

Excellence

Doing our best work and exceeding expectations with responsive, efficient, and effective customer service.

Critical Success Factors



Financial Stewardship and Asset Management



Reliable Core Services



Vibrant Economic Climate



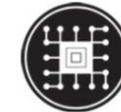
Quality Programs and Amenities



Engaged Community



Healthy Workforce



Supportive Technology



Collaborative Regional Partner



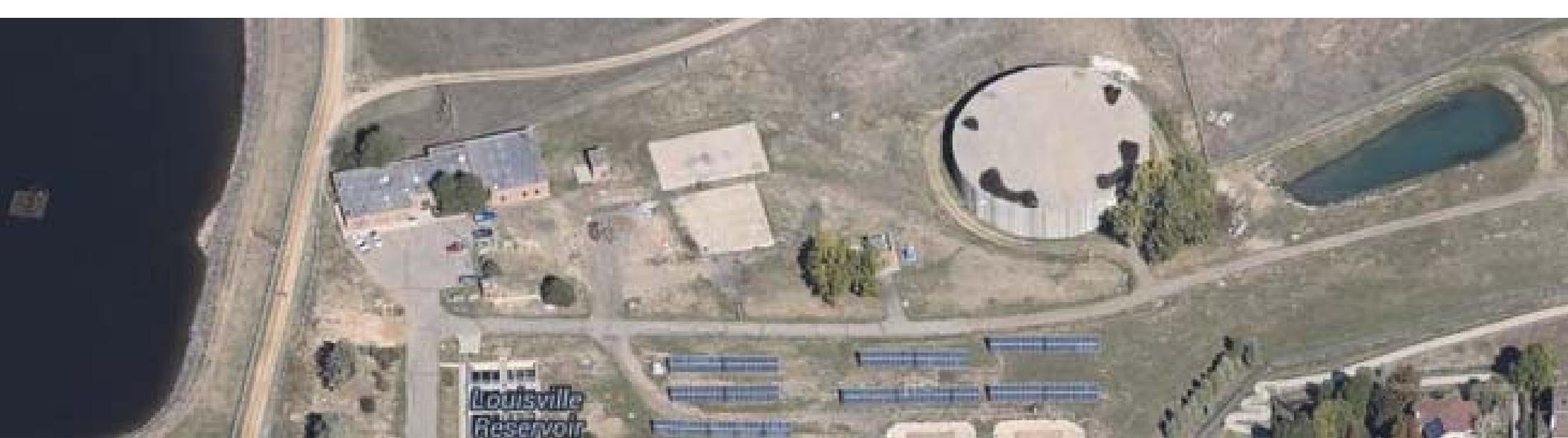
Financial Stewardship and Asset Management

The City of Louisville has established financial policies and internal controls to ensure financial sustainability and financial resiliency, and to safeguard the City's assets. The City's recurring revenues are sufficient to support desired service levels and proactively maintain critical infrastructure and facilities. The City practices long-term financial planning through a comprehensive budget process to proactively adjust for changes in financial forecasts. City employees are trusted stewards of the public's money and assets.



Reliable Core Services

Louisville is a safe community that takes comfort in knowing core services, such as police, roads, water and basic maintenance, are fair, effective, consistent, and reliable. Excellent customer service is provided in the delivery of all City services. The City is prepared for emergencies and offers residents peace of mind knowing basic municipal services are planned for and carried out.

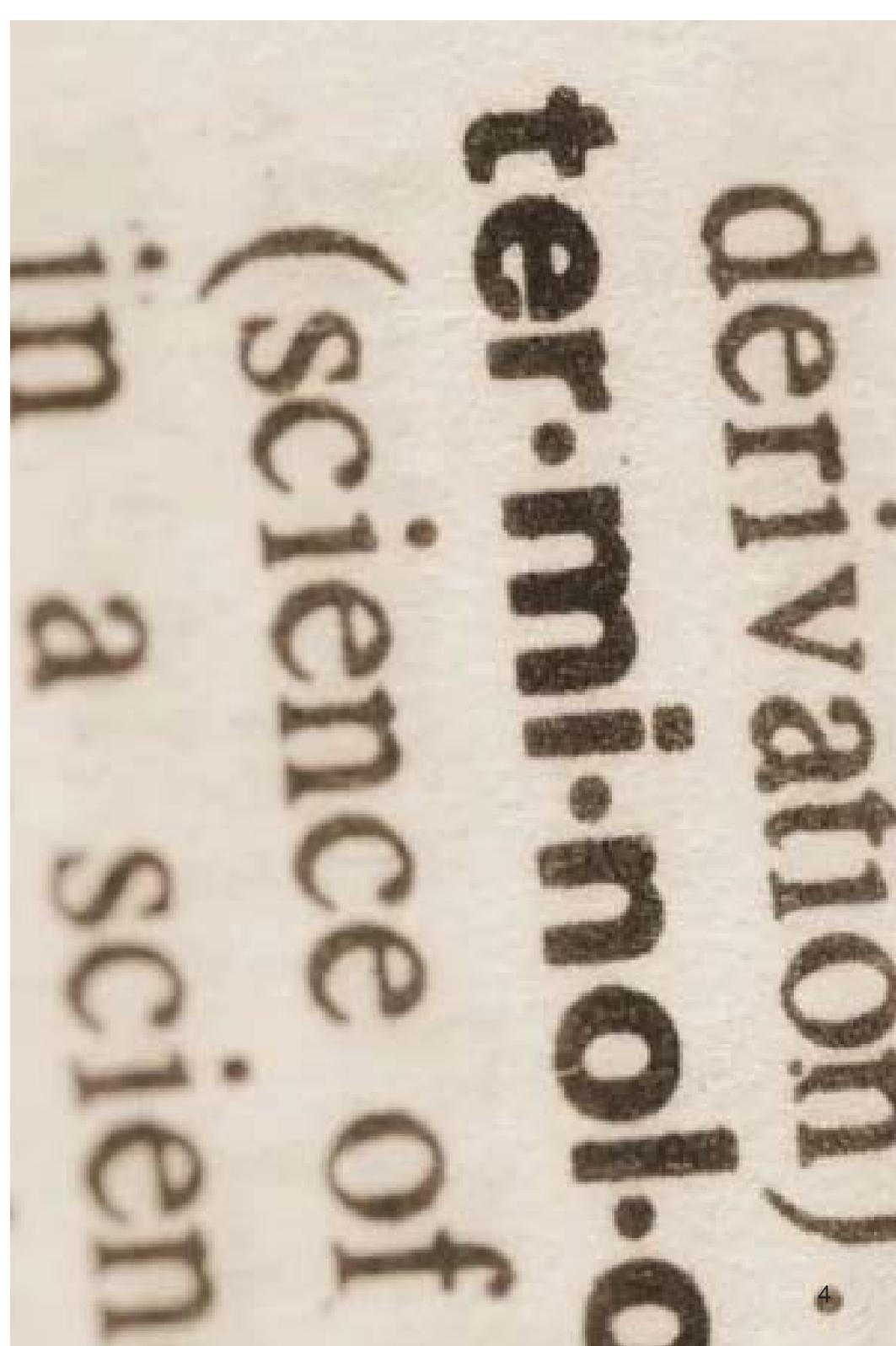


Goals for this conversation.

1. Review **Sources of Supply** ~ Where can we get our water from?
2. Review previous **Planning Efforts** ~ How much water do we have and need?
3. Review **Tap Fee Methodology** ~ How do we determine our fees?
4. Review **Surrounding Communities** ~ How do others compare?
5. Recommend **Approval** of proposed Tap Fees or **Direction** for alternative action.

Terminology

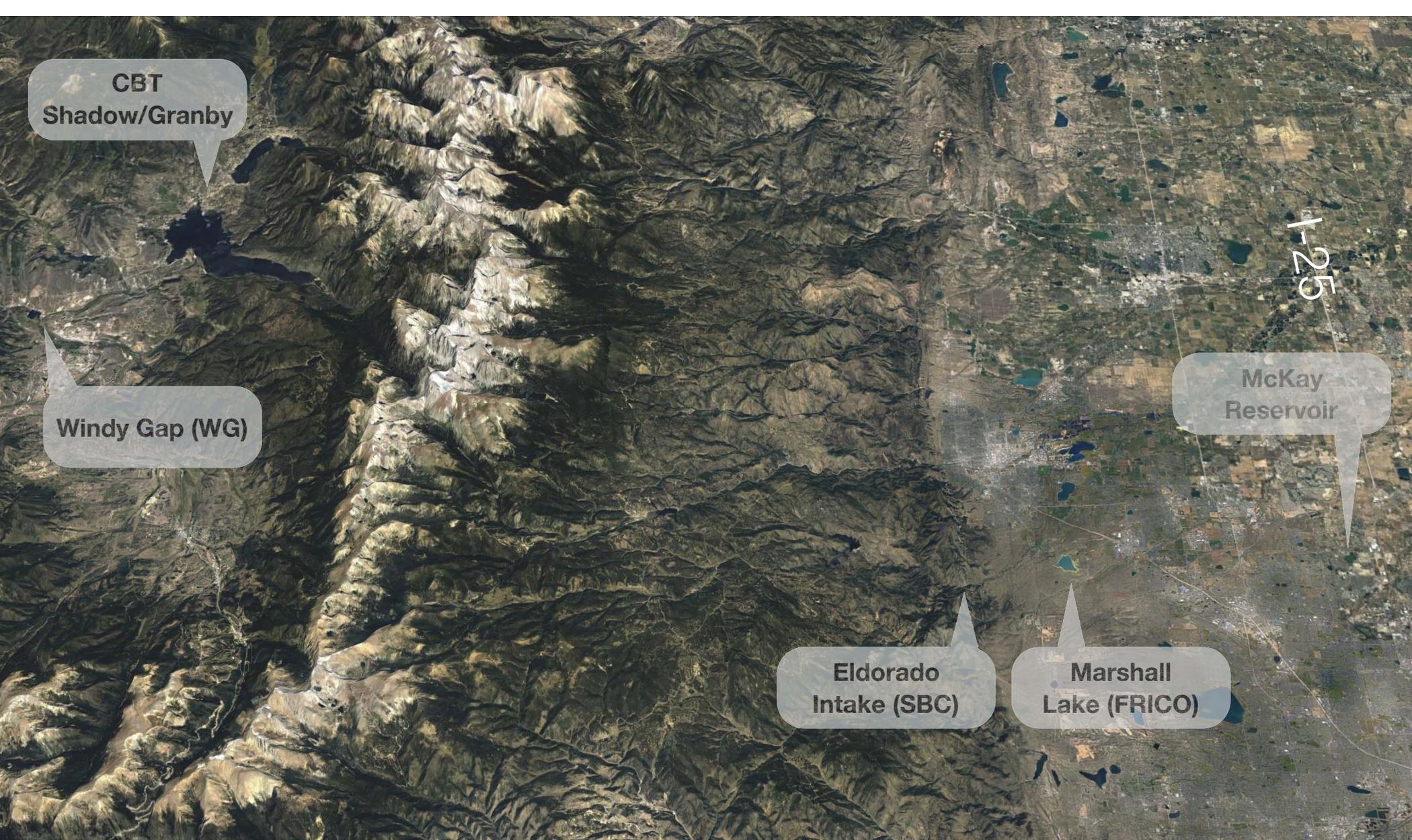
1. **Acre-Foot** - The volume of water 1 foot deep over 1 acre of water. This is roughly 326,000 gallons or the amount to serve about 3 homes in Louisville.
2. **Firm Yield** - The estimated amount of water available in drought conditions.
3. **Average Yield** - The estimated amount of water available in a typical year.



Sources of Supply

- South Boulder Creek (SBC) / Marshall Lake (FRICO)
 - Colorado Big Thompson (CBT) / Windy Gap (WG)
-

Where can we get our water from?



CBT
Shadow/Granby

Windy Gap (WG)

Eldorado
Intake (SBC)

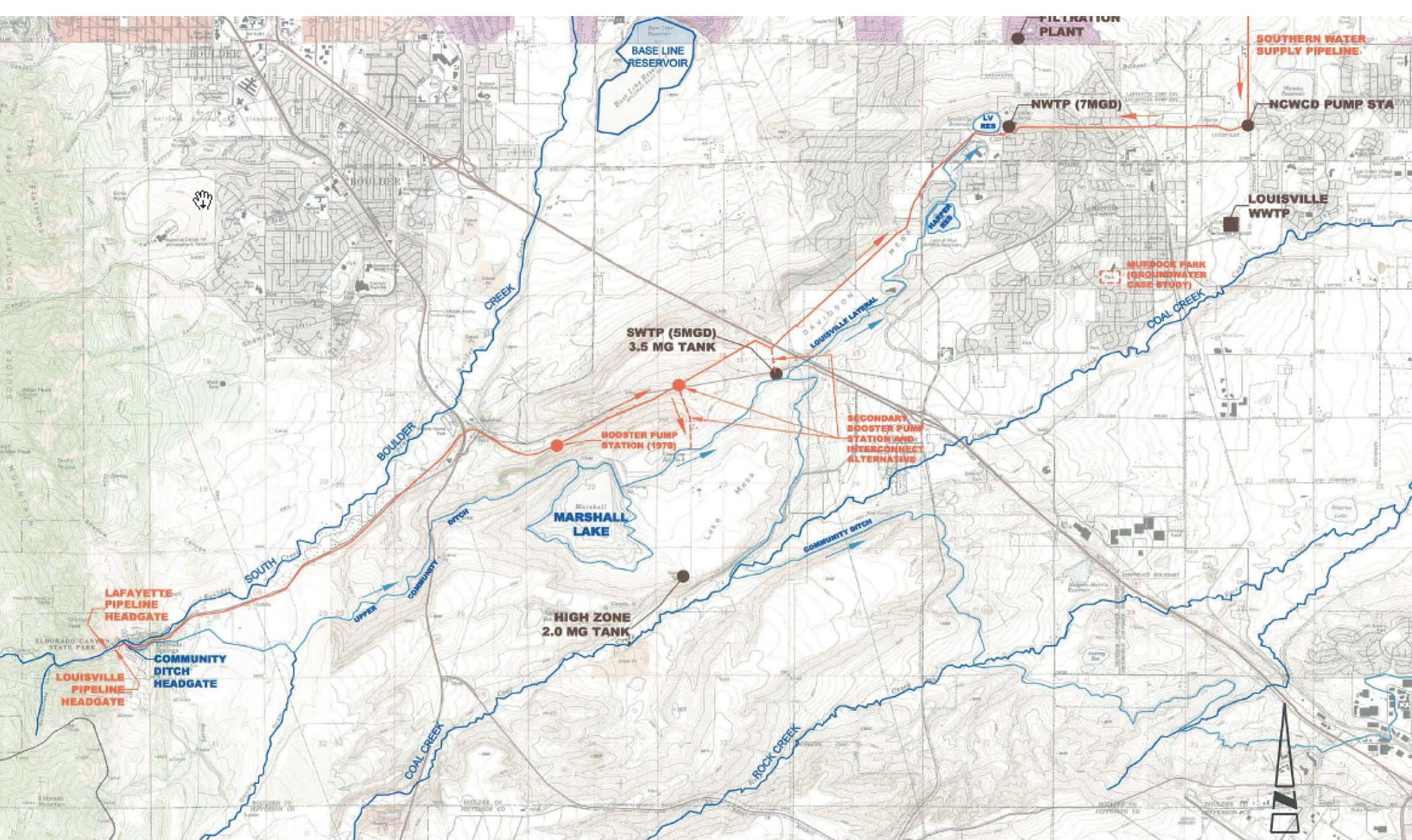
Marshall
Lake (FRICO)

McKay
Reservoir

1-25

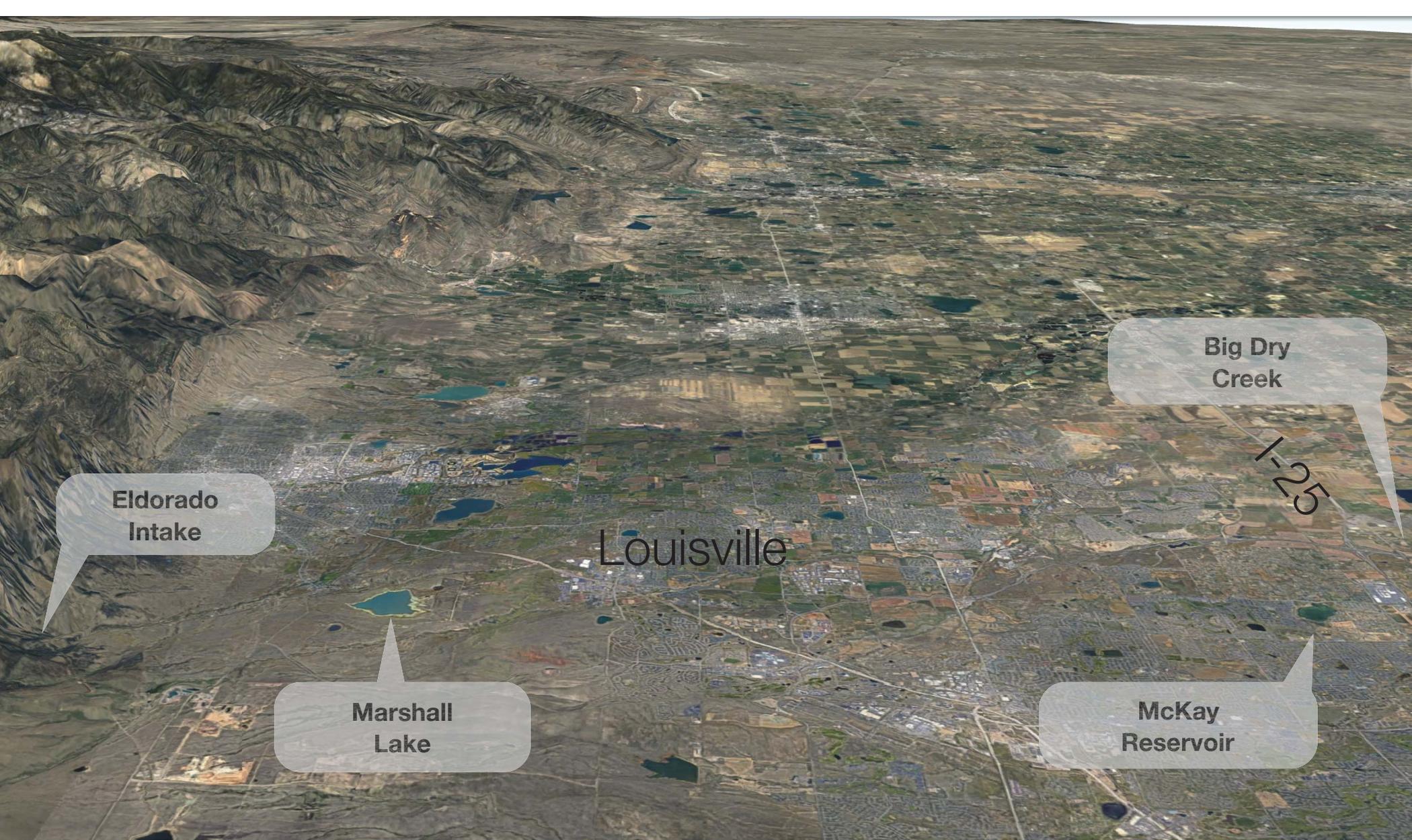
The Global Perspective

Two River Basins
East Slope (SBC)
West Slope (CBT/WG)



South Boulder Creek (Direct)
 Marshall Lake (FRICO)

Primary Supply ~ 3,800 ac-ft (Firm)
 44 Different Rights
 13 Different Ditch Companies



Eldorado
Intake

Marshall
Lake

Louisville

McKay
Reservoir

Big Dry
Creek

I-25

Water Court Transfer
Return Flows

Current and Future Transfers
Must Return Flows to Big Dry
Creek West of I-25



McKay to Big Dry Creek Return Flows

Infrastructure (\$10 million)
OR
Collaboration (Westminster)

McKay Pipeline \$10,000,000

Water Court Transfer \$200,000

Total **Overhead** **\$10,200,000**

Marshall cost per ac-ft \$15,000

100 ac-ft

$\$15,000 \times 100 = \$1,500,000$

$(\$1,500,000 + \text{Overhead}) / 100 = \mathbf{\$117,000 \text{ ac-ft}}$

200 ac-ft

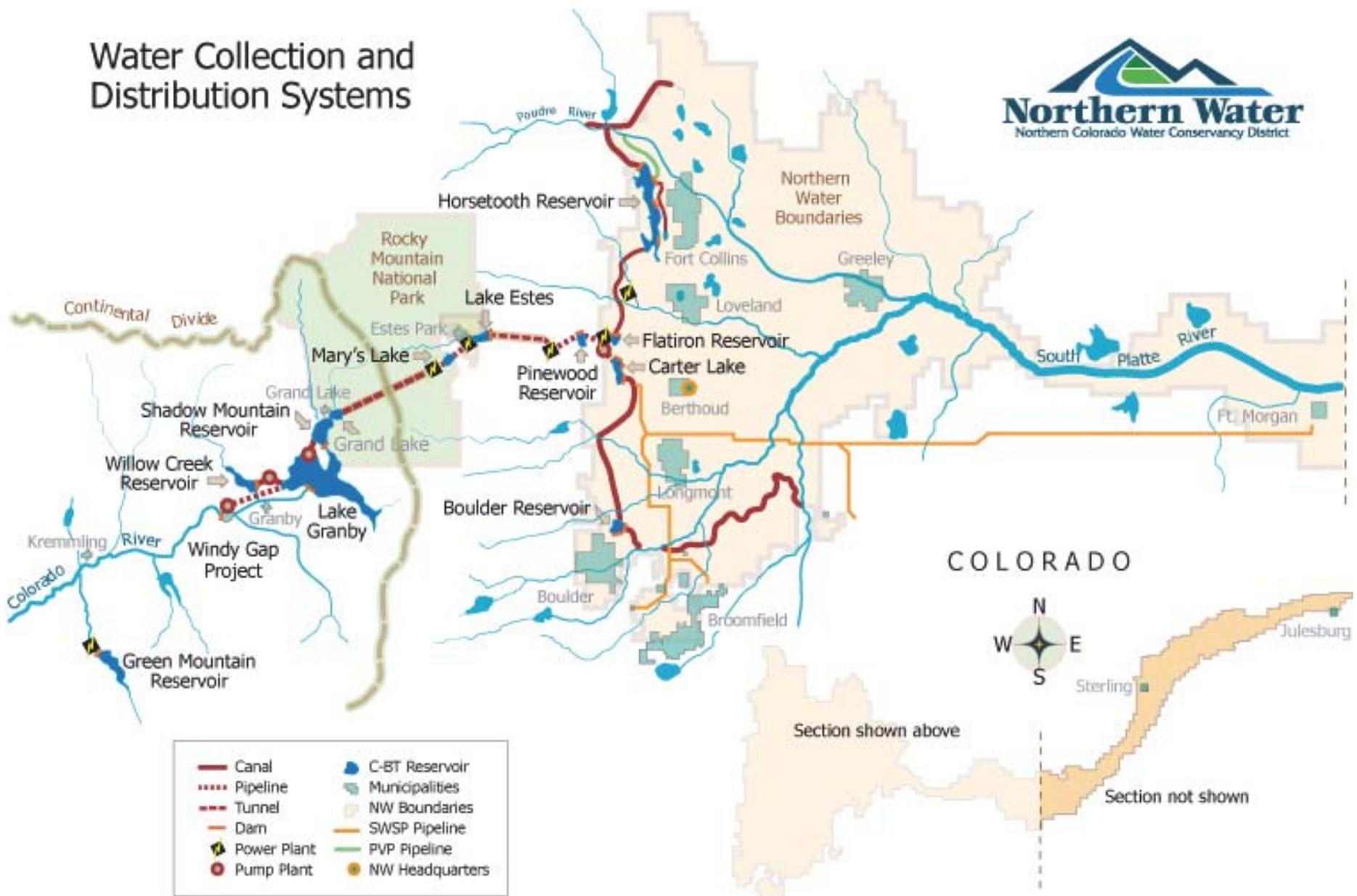
$\$15,000 \times 200 = \$3,000,000$

$(\$3,000,000 + \text{Overhead}) / 200 = \mathbf{\$66,000 \text{ ac-ft}}$

Marshall Shares
McKay Math

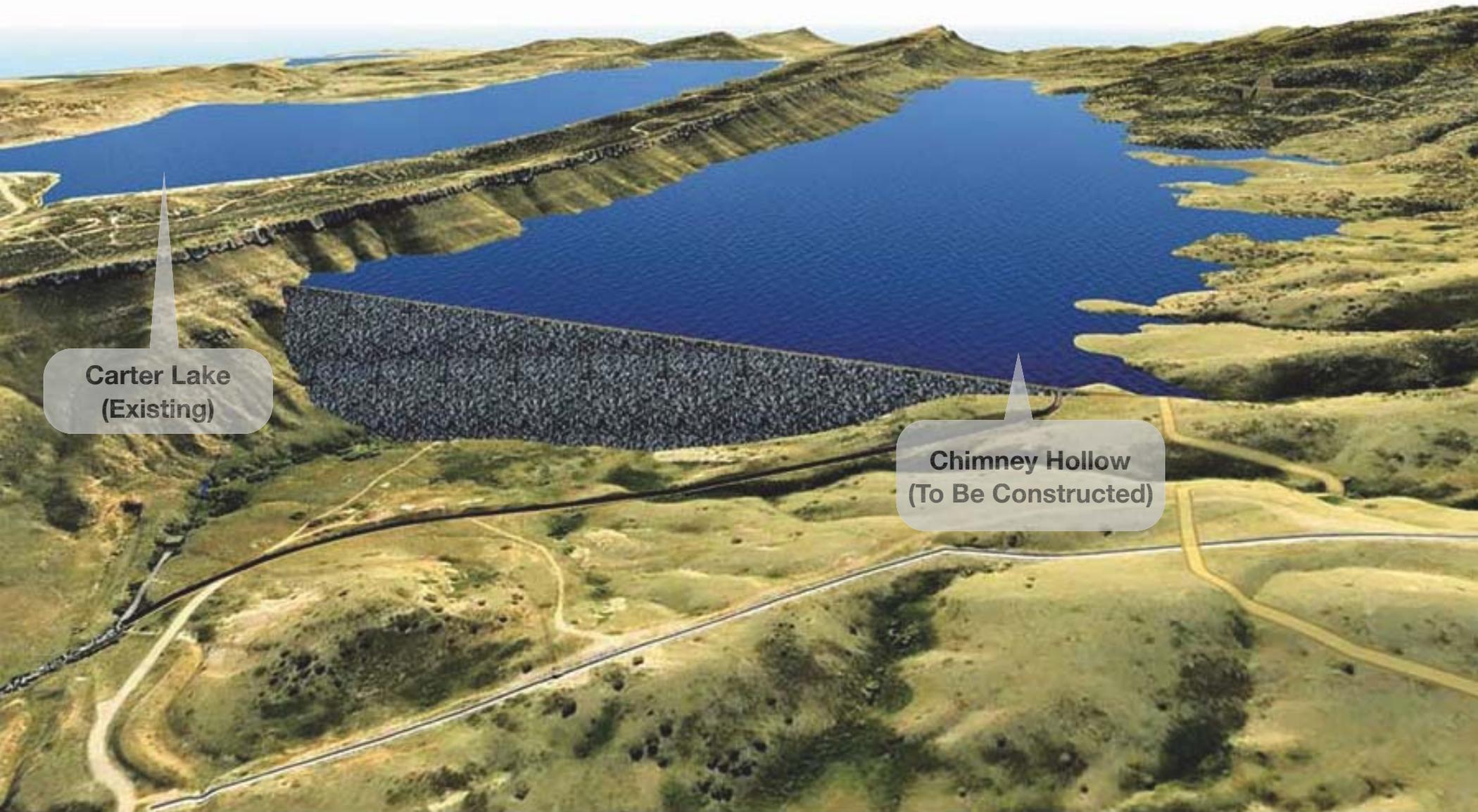
Could Acquire Additional Shares
We Own 376 ac-ft Impacted Today
It Gets Complex. This is Simplified

Water Collection and Distribution Systems



Colorado Big Thompson
Windy Gap

Secondary Supply
 CBT (Dry) ~ 1,240 ac-ft (Firm)
 WG (Wet) ~ 2,835 ac-ft (Storage)
 WG (Wet) ~ 600 ac-ft (Firmed)

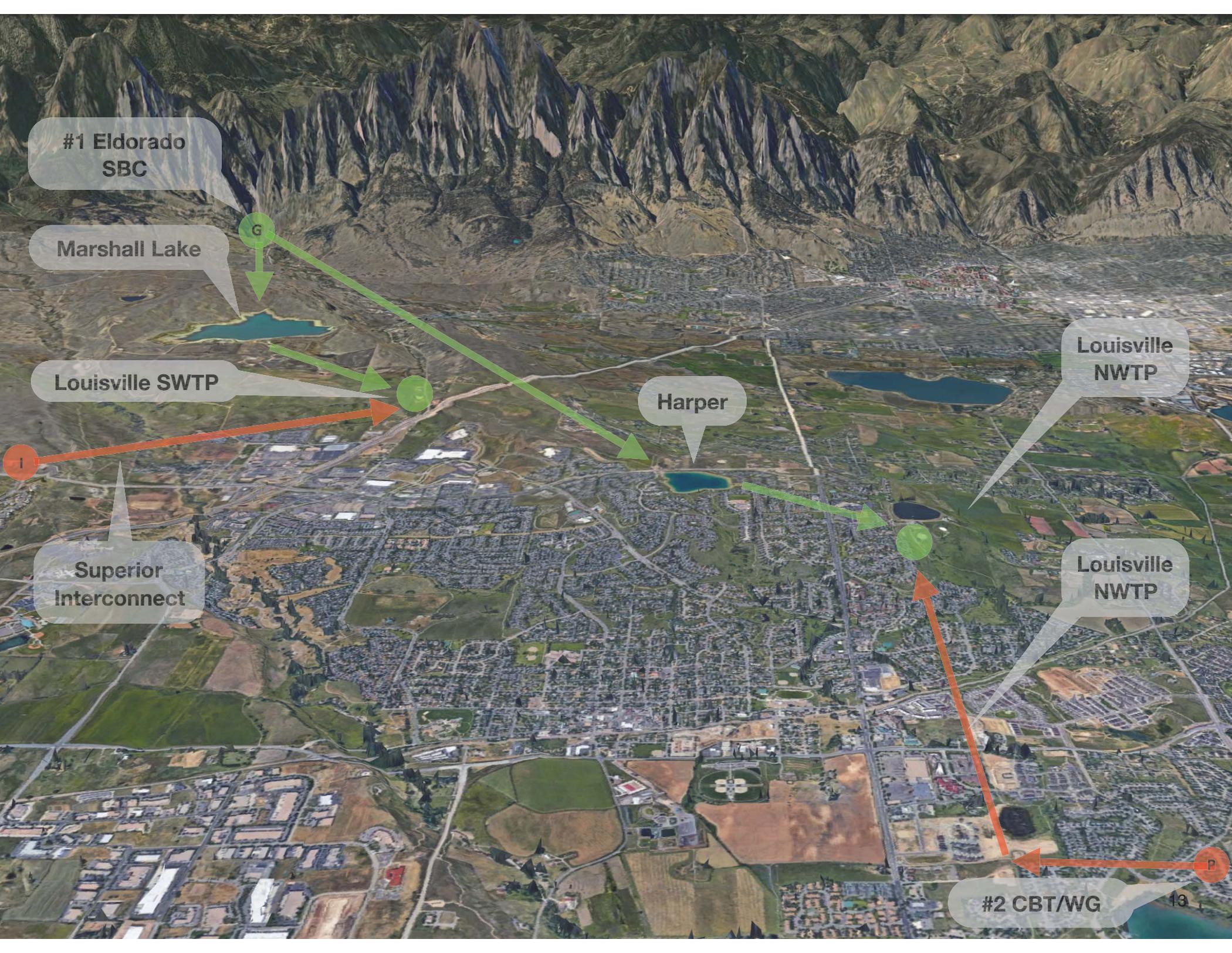


Carter Lake
(Existing)

Chimney Hollow
(To Be Constructed)

Windy Gap Firming Chimney Hollow Reservoir

0 ac-ft Reliable Without Firming (Spills)
2,835 ac-ft With New Reservoir
\$480 Million New Reservoir
Early/Mid 2020's Completion



#1 Eldorado SBC

Marshall Lake

Louisville SWTP

Superior Interconnect

Harper

Louisville NWTP

Louisville NWTP

#2 CBT/WG

Water Acquisition Considerations

	SBC Basin	CBT/WG Basin
Delivery (\$/ac-ft)	\$0/ac-ft	\$52 - 147 ac-ft
Storage	Marshall	CBT and WGF
Acquisition Cost (\$/ac-ft)	\$15,000 - \$117,000 *	\$93,000
Water Court Risk	High	None
Administration	Complex	Simple
Return Flow Requirements	Yes	No
Reuse	No	CBT-No, WGF-Yes
Resale	Limited	Significant
Resilience	Limited	Significant
Threats	Fire, Landslide, Flood, Colorado Compact Call, Gross Reservoir	Fire, Colorado Compact Call

* Dependent on watershed where shares are acquired, water court costs, and new infrastructure for return flows.

Action	Firm Supply Increase (AF per yr)	Associated CIP	Estimated Cost	Cost per AF
<i>Reference – C-BT unit</i>	0.6	N/A	\$55,900	\$93,200
<i>Reference – FRICO share</i>	2	N/A	\$30,000	\$15,000
Load Shifting	100	Louisville Lateral	\$2.5 million	\$25,000
SWSP Enlargement	800	SWSP Transmission Capacity	\$3.2 million	\$4,000
Windy Gap	600	Windy Gap FIRMING	\$26.4 million	\$44,000
Additional Water Supplies	200	Water Rights Acquisition	\$6 million	\$30,000
TOTAL	1,700		\$38.1 million	\$22,400

Relative Water Firming
Costs

\$ per Acre Foot of Water

Planning Efforts

How much water do we have and need?

Water Planning

- **1979** Comprehensive Water System Planning Report
- **1989** Water Distribution System Study Update
- **1992** Raw Water Master Plan
- **1998** Raw Water Master Plan Update
- **2003** Raw Water Master Plan Update
- **2012** Water Infrastructure Master Plan
- **2013** Drought Management Plan
- **2015** Water Efficiency Plan
- **2016** Raw Water Master Plan



CITY OF LOUISVILLE

RAW WATER - RAW WATER SCHEDULING TO MEET RAW WATER DEMANDS

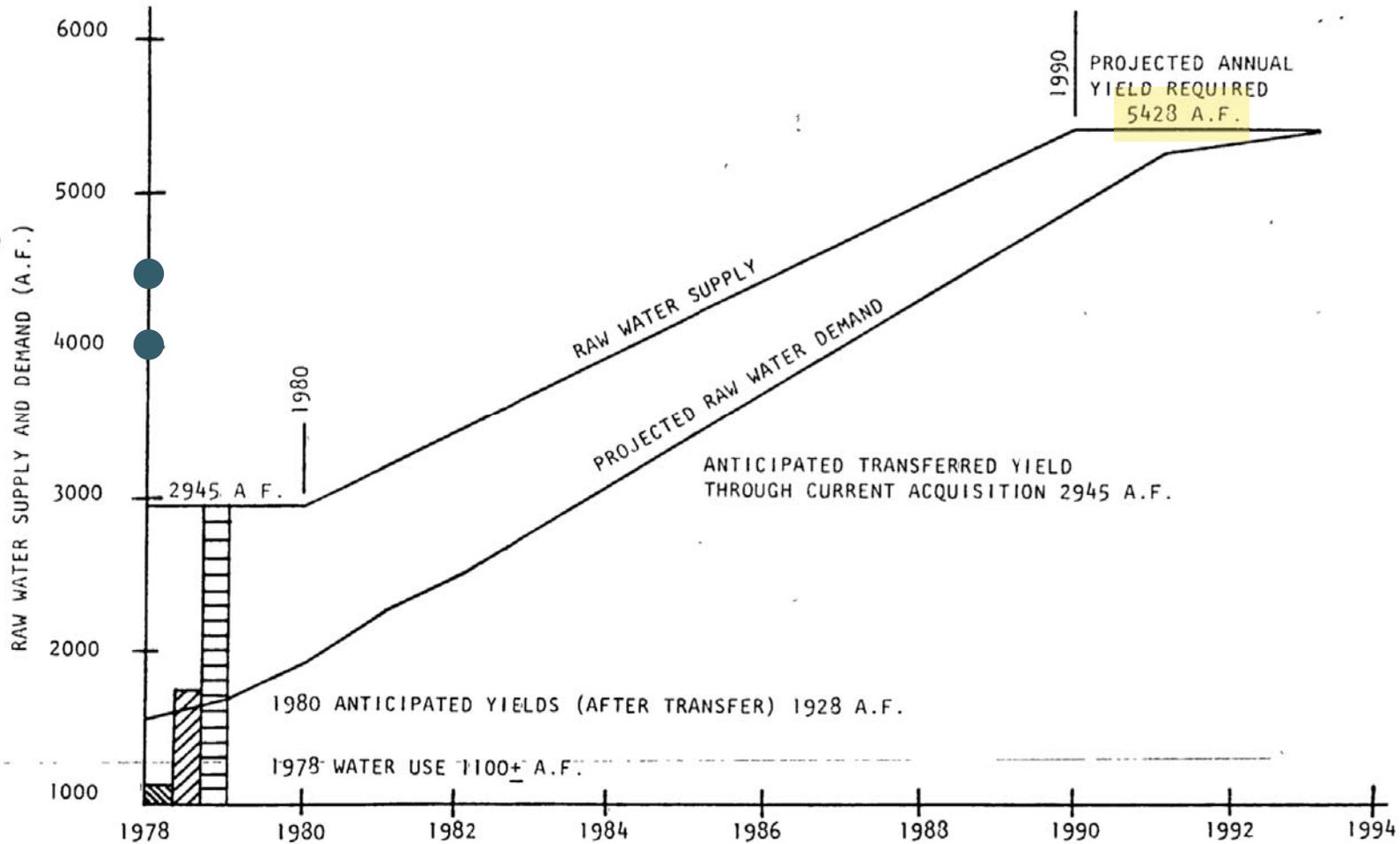


FIGURE 1

Comprehensive Water System Planning Report

1979

gradually decreases in the fall until the 5 percent use is again reached in the winter. Figure 4-1 graphically depicts this bell-type of water distribution, that will be applied to future annual demand projections to determine monthly water use.

Build out demands were not a part of this study. *The Water Distribution System Study Update, 1989*, by Rocky Mountain Consultants, Inc. was the source of buildout demands. That study indicated that at buildout the City's average day potable water demand would be 8.95 mgd, equating to approximately 10,026 AF per year. However, that study included land in the southwest planning area, which is now within Boulder County Open Space. Its removal from the City's planning area will reduce the ultimate demand by 837 acre feet, and produces a projected ultimate annual potable water demand of 9189 AF.

The scope of the Raw Water Master Plan called for the evaluation of the raw water system's ability to meet an undefined interim demand. The mid-point potable water demand between the 1991 and ultimate demands was selected as 6,213 AF per year.

Raw Water Master Plan Update

1992

Table 6-1. Alternatives Evaluation Summary

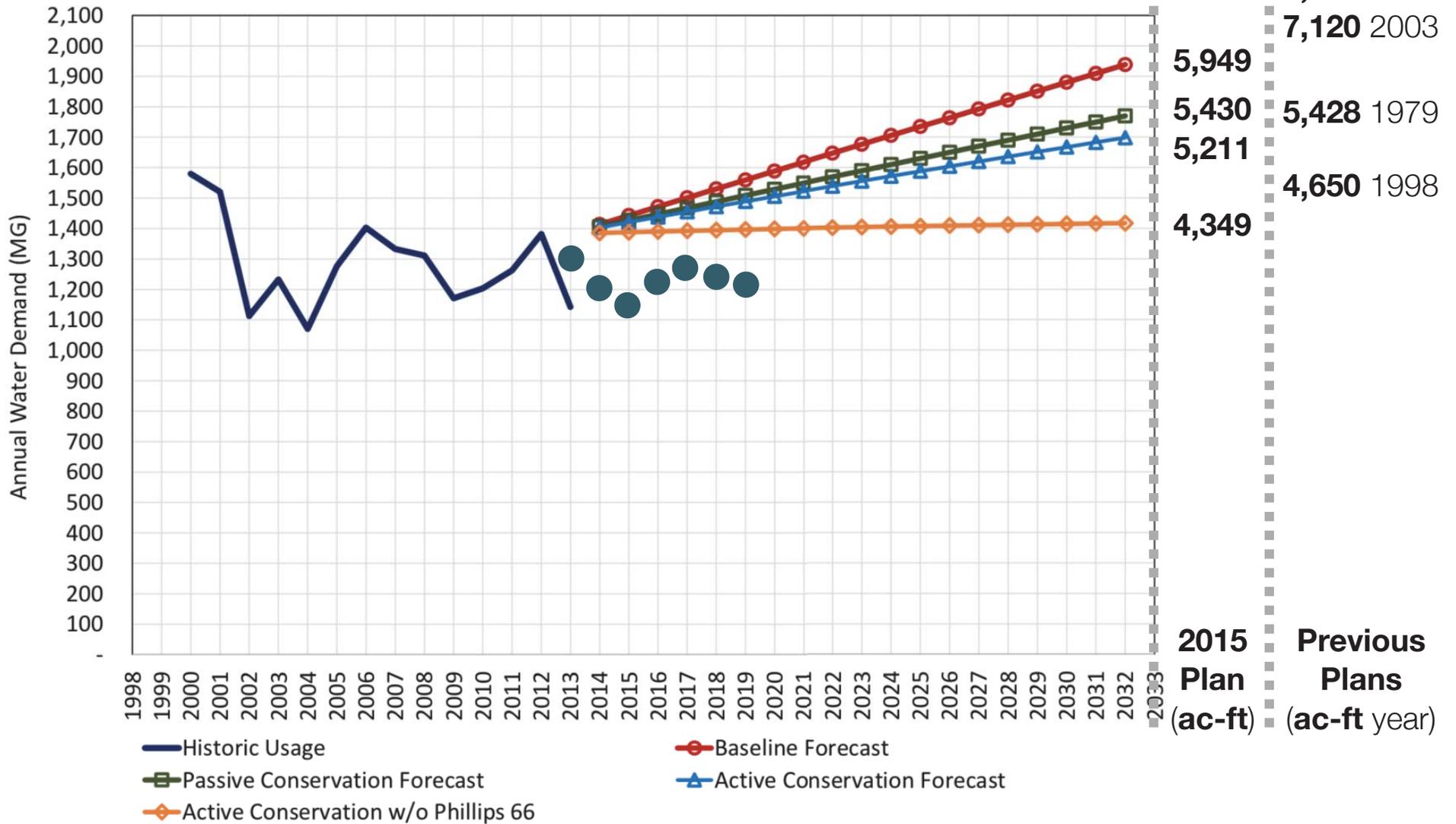
Scenario / Alternative	Description	Annual Demand	Supplies	Firm Yield	Deficits	Comments
1992 RWMP	Current conditions (as of 1992)	3557 ac-ft <ul style="list-style-type: none"> 1618.5 WTP1 1618.5 WTP2 320 golf course 	<ul style="list-style-type: none"> South Boulder Creek water rights & storage (all except 92CW79 & 99CW230) FRICO-Marshall Lake shares = 329,504 of 1405,21 SBCCD shares = 26,825 of 43 	2011 ac-ft	<ul style="list-style-type: none"> 1963 - 0 1964 - 386 ac-ft 1965 - 337 ac-ft 	<ul style="list-style-type: none"> Firm yield defined by annual yield during 1954 simulation SYSTEM model simulates single year of operations (selected from 1950-1985 historic period)
1998 RWMP Update	Current Conditions (as of 1998)	4650 ac-ft <ul style="list-style-type: none"> 2220 WTP1 2220 WTP2 210 golf course 	<ul style="list-style-type: none"> South Boulder Creek water rights & storage (all except 99CW230) FRICO-Marshall Lake shares = 322,654 of 1323,149 SBCCD shares = 24,825 of 41 C-BT units = 600 WGP shares = 3 	4650 ac-ft	None	<ul style="list-style-type: none"> SYSTEM revised to simulate 2-year drought periods Firm yield defined by meeting full demand during March 1963-February 1965 design drought period. C-BT and WGP yields estimated based on historical quotas and correlations with Colorado River flows
2003 RWMP Update						
Current Conditions	Model updated to reflect 2003 demand and supplies	4866 ac-ft <ul style="list-style-type: none"> 2329 WTP1 2329 WTP2 208 golf course 	<ul style="list-style-type: none"> South Boulder Creek water rights & storage (all XFR's complete) FRICO-Marshall Lake shares = 350 SBCCD shares = 24,825 of 41 C-BT units = 1739 WGP shares = 9 WGFP storage = 0 ac-ft 	5000 ac-ft	None	<ul style="list-style-type: none"> SYSTEM revised to simulate carryover storage and operations over multi-year periods Firm yield defined by meeting full demand during 1950-2002 simulation period. C-BT and WGP operations simulated via integration between SYSTEM and WGFP models. Louisville PL avg div'n = 1.69 cfs, peak in Jun-Aug, max = 5.25 cfs SWSP avg div'n = 1.53 cfs, peak in Jun-Aug, max = 5.01 cfs min City storage = 931 ac-ft (Apr 1965)
Future Conditions - No Action	<ul style="list-style-type: none"> No change in South Boulder Creek water supply portfolio, operations or infrastructure C-BT ownership at maximum allowable WGFP firming pool in place. Attempt to meet all demand at WTP1 with SWSP and Louisville PL direct flow water Demand evenly distributed between WTP1 and WTP2 WTP2 expansion to 10 MGD completed Reuse plant operating (supplies golf course) 	7120 ac-ft <ul style="list-style-type: none"> 3560 WTP1 3560 WTP2 0 golf course (assumed supplied by reuse plant) 	<ul style="list-style-type: none"> Modifications to Current: C-BT units = 2571 WGFP storage = 2700 ac-ft 	5400 ac-ft	<ul style="list-style-type: none"> No deficits at WTP1 All deficits at WTP2 5 deficit periods: <ul style="list-style-type: none"> 1955-1956 (13-months duration) 1963-1967 (43-months duration) 1990 (3-months duration) 2002 (3-months duration) average 100 ac-ft/yr max year - 1446 ac-ft (1966) occur in up to 5 consecutive years (1963-1967) totaling 4274 ac-ft 	<ul style="list-style-type: none"> No additional capital or operating costs Firm yield is limited because available SWSP can only be delivered to WTP1 City will face frequent, significant shortages Louisville P. avg div'n = 1.73 cfs, peak in May-Aug, max = 5.25 cfs SWSP avg div'n = 3.23 cfs, peak in May-Aug, max = 7.20 cfs min City storage = 0 ac-ft (during each deficit) WTP1 and WTP2 peak usage occurs in July at 6.3 MGD (less than expanded WTP2 capacity, but at 90% of WTP1 capacity)

Previous Raw Water Master Plans

1992, 1998, 2003

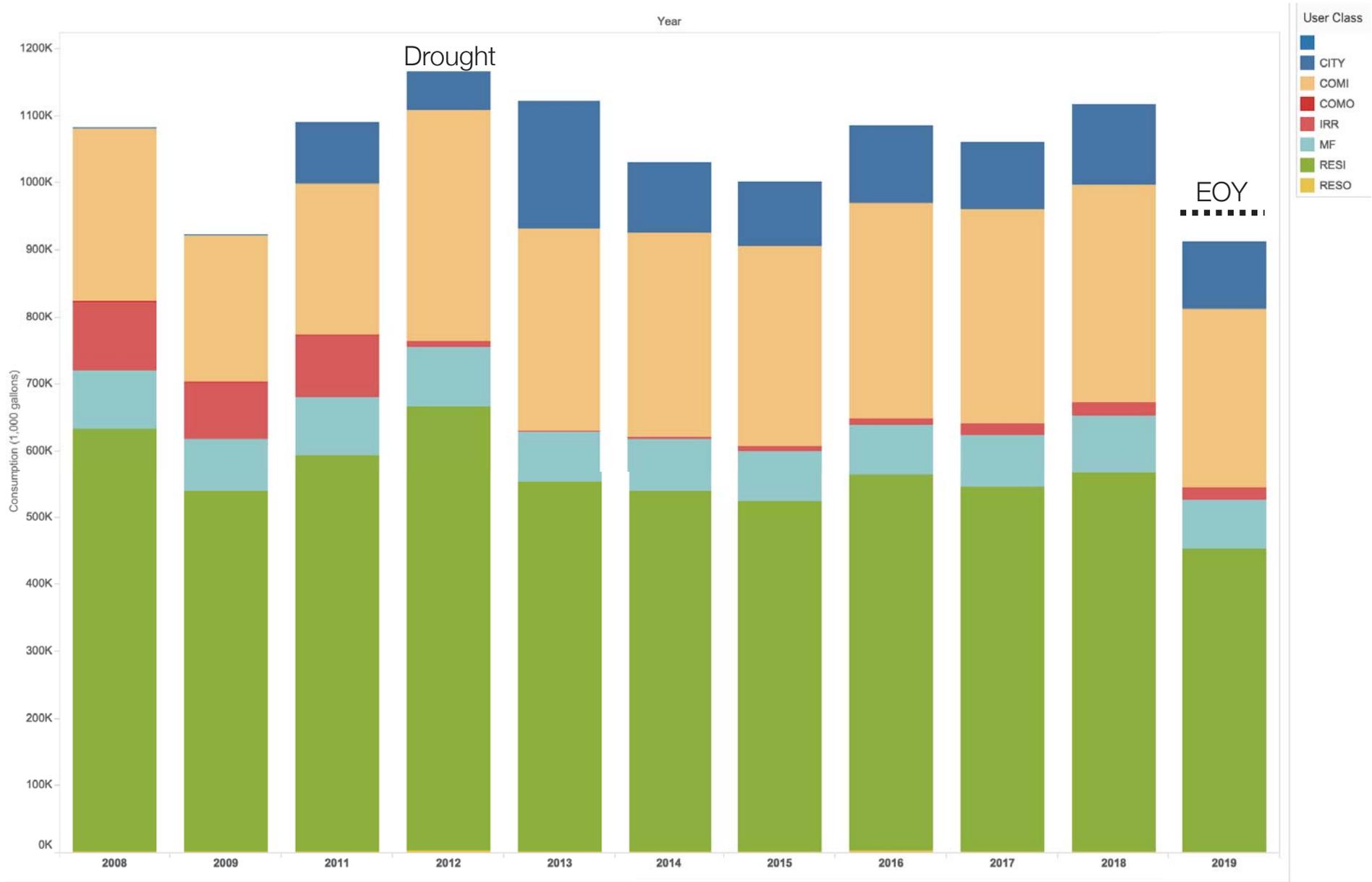
FIGURE 6

Baseline, Passive, and Active Demand Forecasts through 2032



Water Efficiency Plan

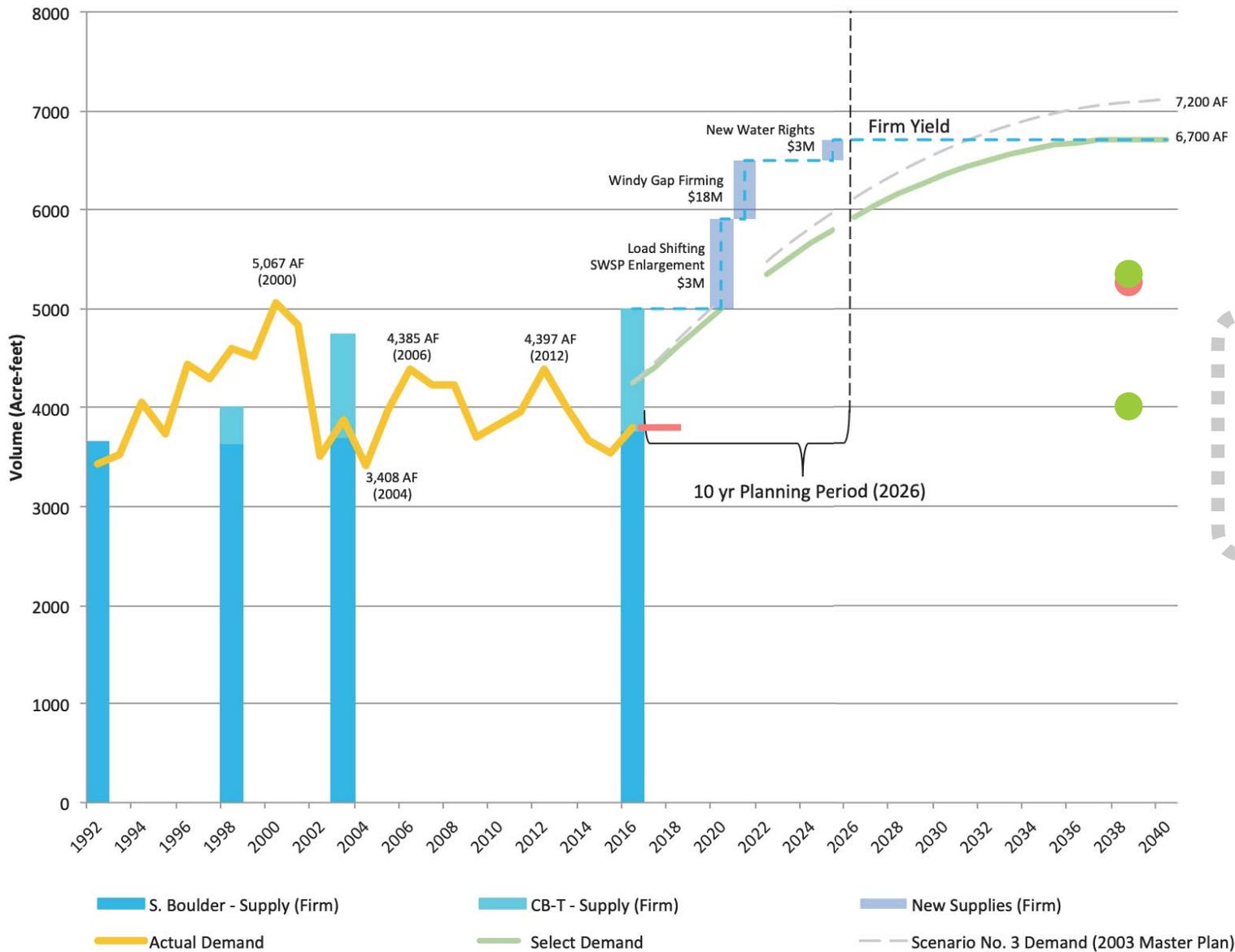
2015



Historical Meter Consumption

Metered Consumption Demands Does Not Include Raw Water

Water Supply and Demand



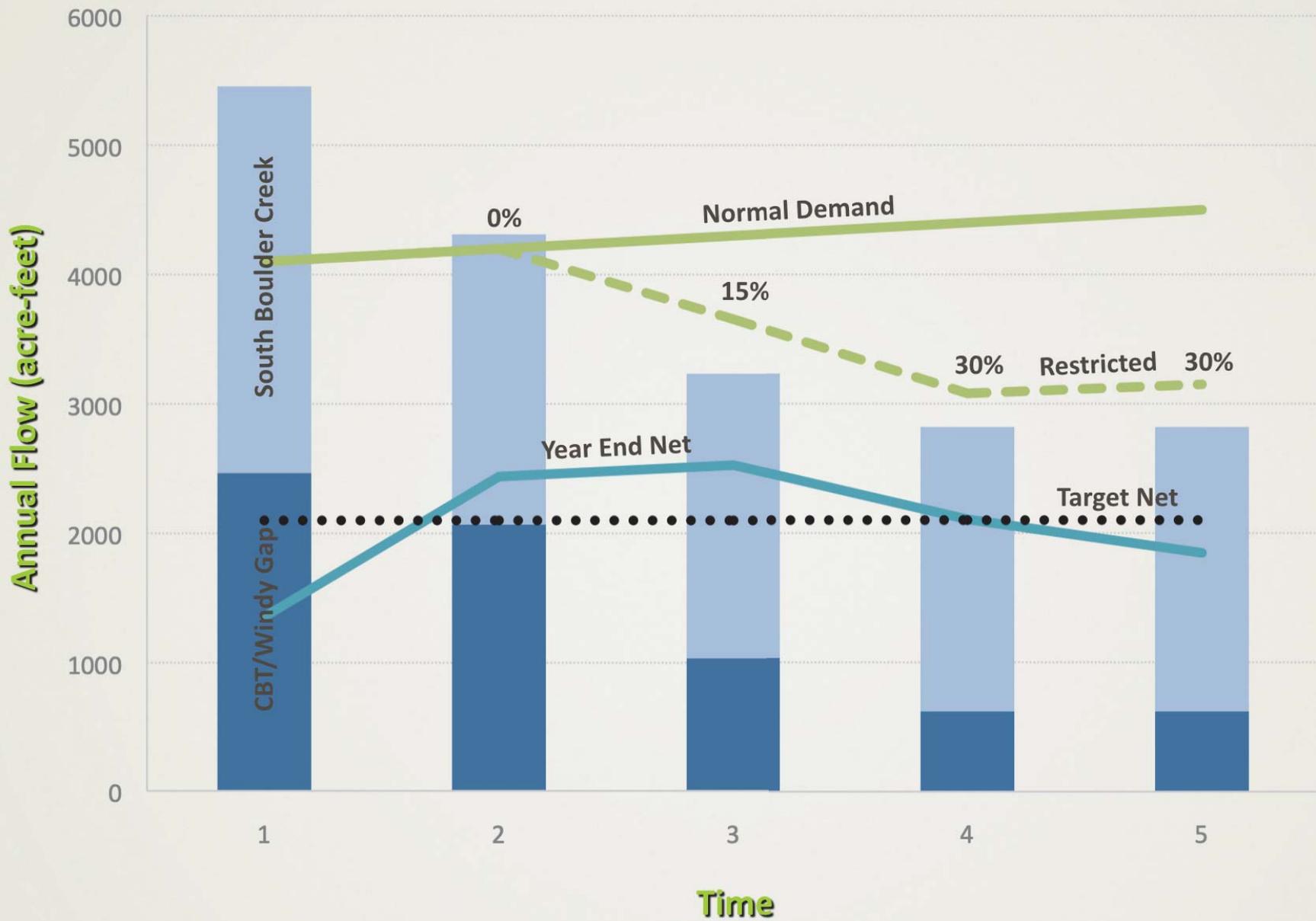
Scenario 1
2015
Water Efficiency Plan
 6,100 ac-ft

Scenario 2
2013/2016
Drought Management Modeling Reviews
 6,500 ac-ft

Scenario 3
2003
Raw Water Master Plan Update
 7,120 ac-ft

Raw Water Master Plan Update

2016 ~ Recommended **6,700** ac-ft
 Scenario 2 with Contingency
 $6,500 + 200 = 6,700$ ac-ft



Drought

US Drought Monitor
 Snow Pack ~ Water Supply
 Demands
 Windy Gap Firming Critical

Climate Change

- **Winter** Precip Increase 10-20%
- **Summer** Precip Decrease 5-15%
- **Late Summer** Stream Flows Decrease 8-10%
- **Irrigation** Demands Increase 5-15%
- **Reservoir** Evaporative Losses Increase
- **Weather** Extremes Increase
- **Storage** becomes more important.
- **Outdoor Watering** Efficiency becomes more important.

Figure 3
Potential Runoff Timing Shift

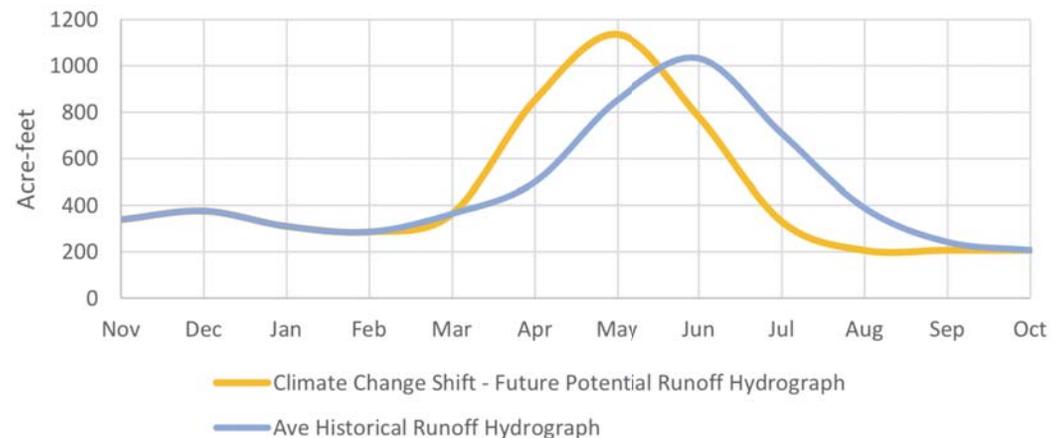
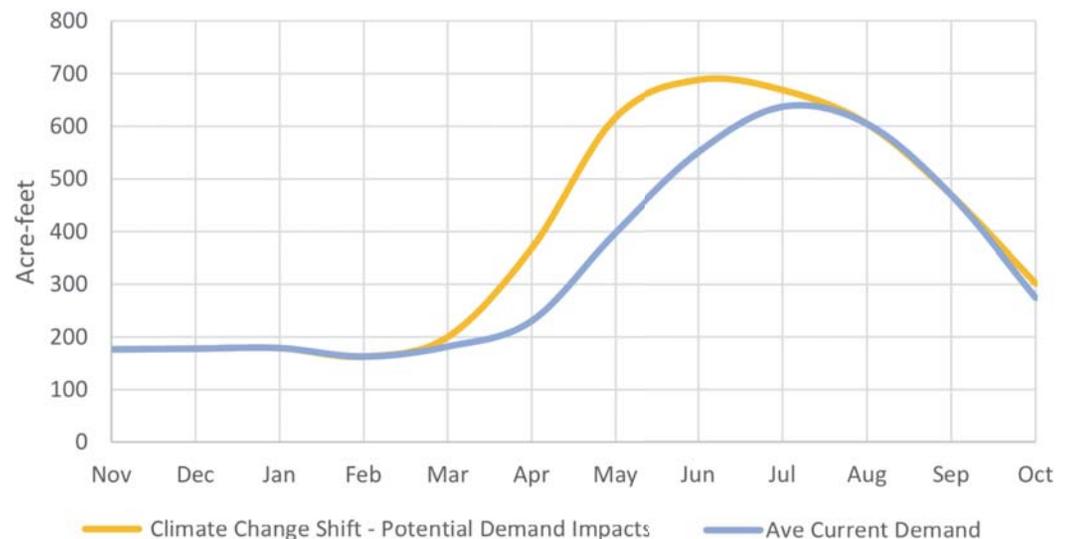
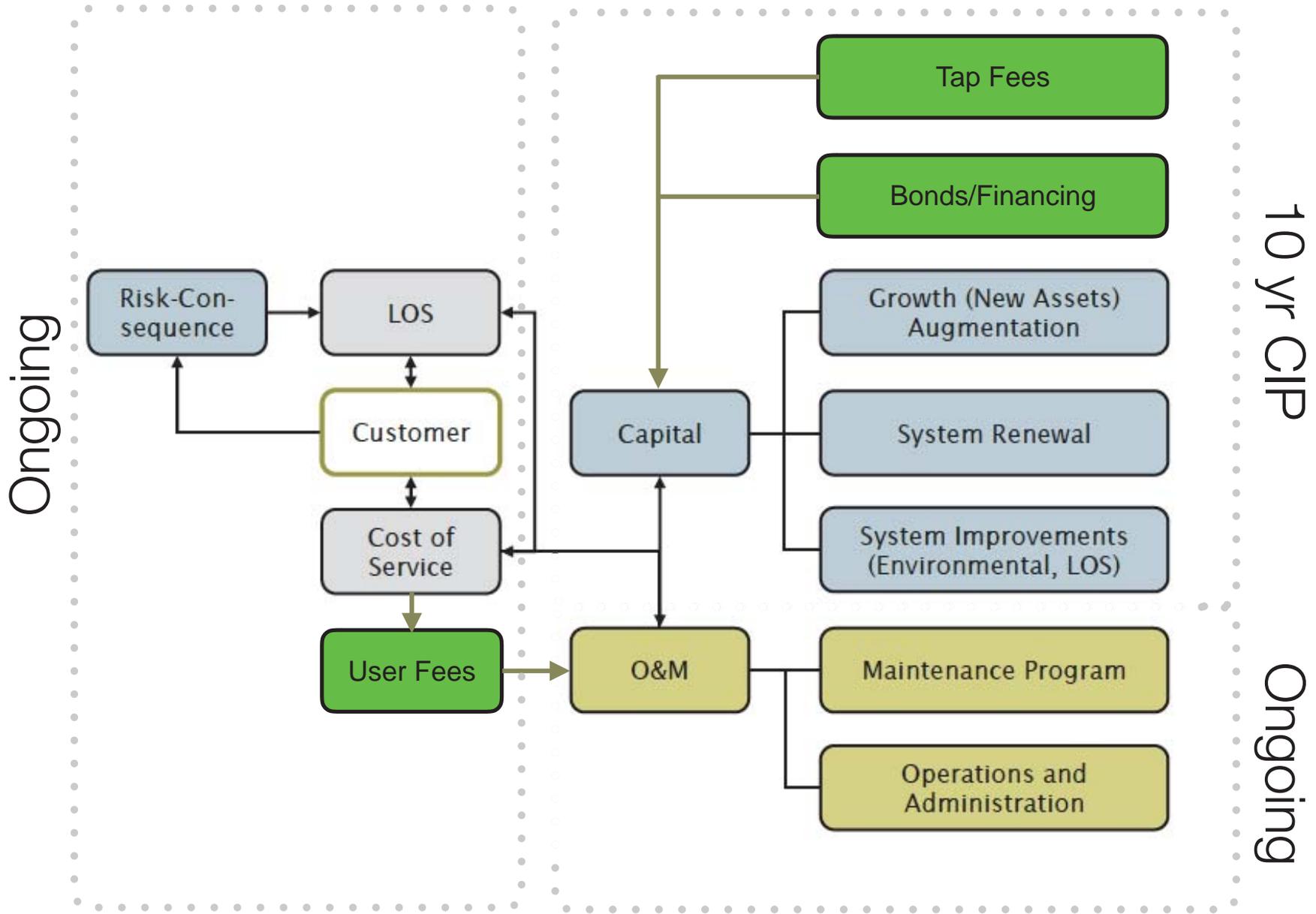


Figure 4
Potential City Demand Shift





The Rate Model

Water
Sewer
Storm

City Capital Financing Options

- **Pay-As-You-Go** through user rates. (Monthly Bill)
- **Debt Financing** through Revenue Bonds. (Monthly Bill)
- **System Development Charges** (Tap Fees)
- **Up-Front Direct Project** Reimbursement from developers.



Finances

Why this matters?

- Facilities improvements and water acquisition are paid by Monthly User Fees in Rates or in one time Tap Fees at the time of development.
- If tap fees are not 100% recovered then monthly bills through rate increases will have to pay future costs.



Previous Water Debt

- **1989** Bond \$1.2 million
- **2003** CRWPDA \$10.3 million financed at 5.25%



Tap Fee Methodology

- Industry Methodologies
 - 2000 - 2012 - CBT Market and ENR Construction Cost Index
 - 2013 - Present - CBT Market, Calculated
-

How do we determine our fees?

AWWA Recognized Methodologies

- **Goal** Assign as much as is practical, costs to who benefit from or cause those costs to be incurred that are associated with growth rather than existing customers.
- **Equity Method** (Buy In)
- **Incremental Cost Method**

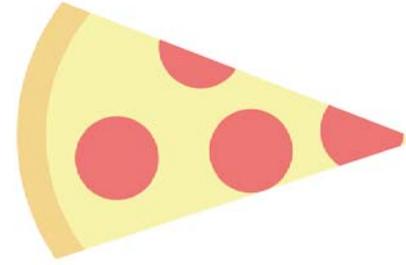


**American Water Works
Association**

Dedicated to the World's Most Important Resource®

Equity Method

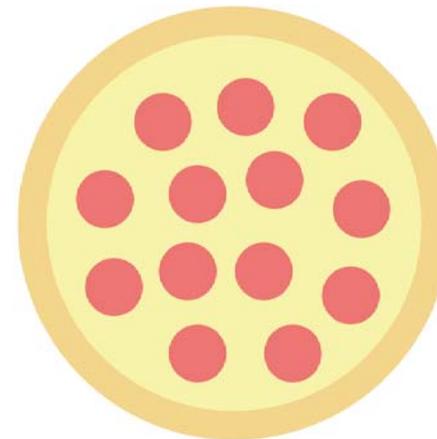
- Achieve capital equity between new and existing customers.
- Assess new customers a fee to approximate the equity or debt-free investment position of current customers.
- The financial goal is to achieve a level of equity from new customers by collecting a fee representative of the average equity attributable to existing customers.
- The **City's Facilities** portion of the tap fee represents the Equity approach.
- You can buy a slice of our pizza at our cost because we have enough for everyone.



Cost
per SFE



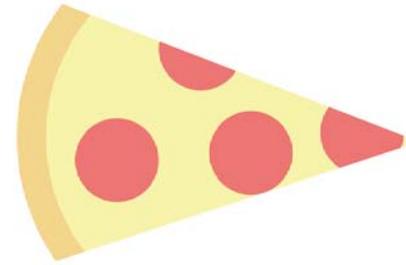
System
Single Family
Equivalents
Value (SFE)



Louisville
Utility

Incremental Cost Method

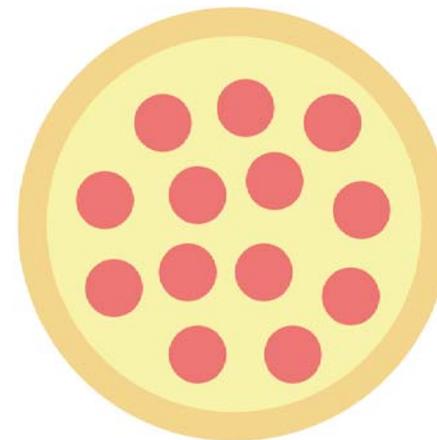
- New development paying for the incremental cost of the system capacity needed to serve the new development.
- This approach mitigates the cost impact of new growth on existing customers' user rates.
- Charge a fee for new customers sufficient to allow customer user rates to be revenue-neutral with respect to growth of the system.
- The **City's Water Acquisition** portion of the tap fee represents the Incremental Cost approach.
- We are near build out, uncertain of future climate change impacts, and cannot predict future infill densification or remaining unbuilt parcel density. You need to go buy your own pizza slice or we'll buy it for you at the market rate.



Cost per
Market
Share



Market Value
per Share



Available
Supply

2000

Facilities ~ \$7,500

Water Acquisition ~ \$7,500

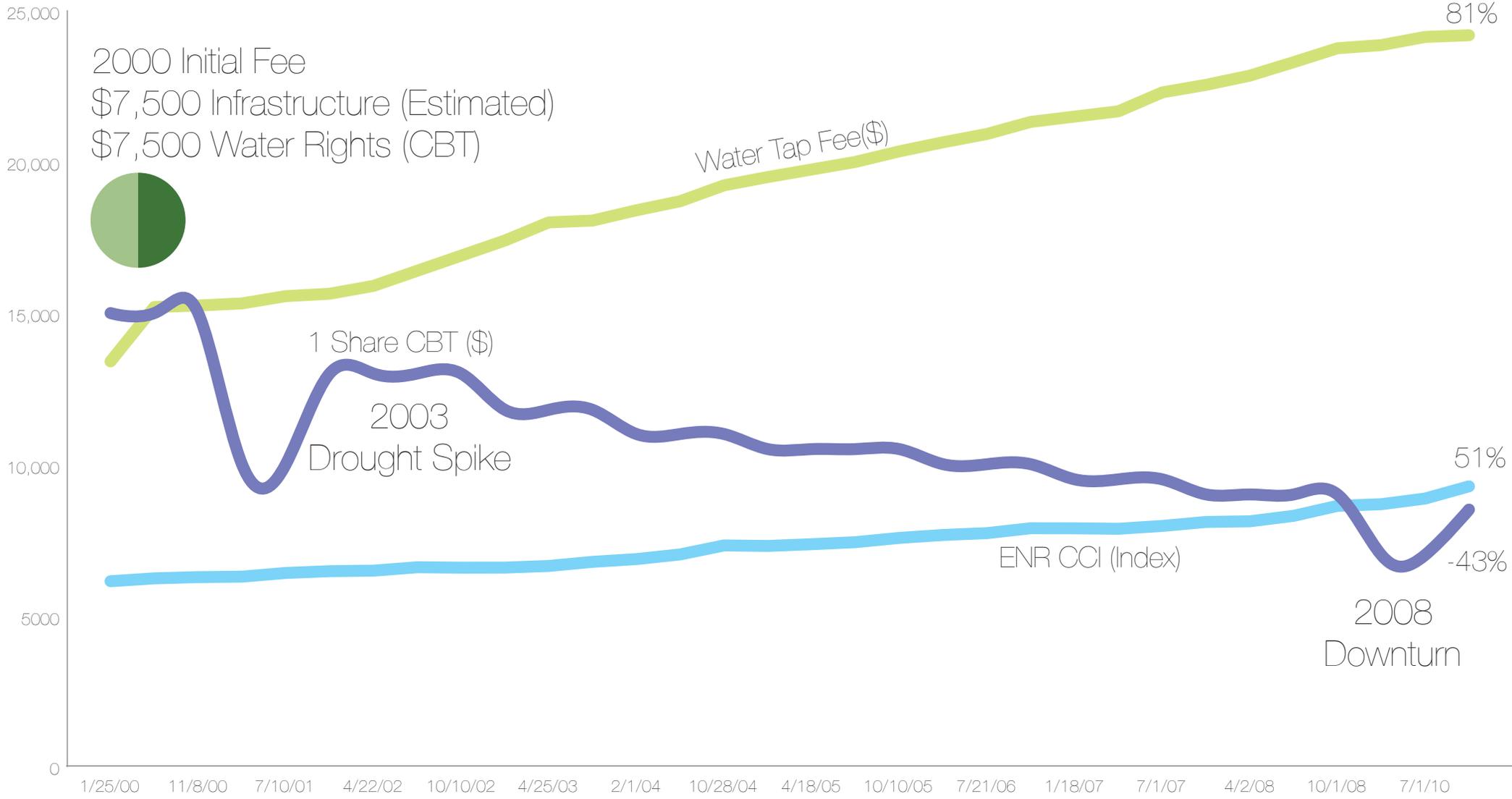
Present

Facilities ~ \$14,100

Water Acquisition ~ \$39,400

Two Extremes

Same Resources
Water Costs Up in Last 5 yrs
Heavy Influence on Fee



2000 to 2013 Methodology

CBT Market
 ENR Construction Cost Index

2013/2014 Utility Rate Study

1. Task Force - 2 Homeowners, 2 Business/Developer, 2 HOA Representatives, 1 At Large Community Representative.
2. Reviewed Financial Planning, Cost of Service, Water Rate Structures, and Tap Fees
3. Recommended to move from CCI Index Estimated Tap Fees to Calculated Tap Fees

Water, Wastewater and Stormwater Utility Rate Study

Final Executive Summary Report

July 30, 2014

Report Prepared By:



Growth Infrastructure Facilities Buy In \$14,100

1. Raw Water Infrastructure
2. Pipes
3. Water Treatment
4. Water Storage
5. Water Pumping

Represents **Equity** via SFE's

Backbone				
	12	150,197	\$185.00	\$27,786,000
	14	1,830	\$189.00	346,000
	16	17,212	\$193.00	3,322,000
	18	9,114	\$197.00	1,795,000
	24	21,733	\$201.00	4,368,000
	30	935	\$206.00	193,000
	36	5,770	\$211.00	1,217,000
	Total	206,791		\$39,027,000
Water Treatment Plant				
		Max Day Capacity	Current Construction Cost per Staff	Current Cost
		<i>gallons per day</i>	<i>per gpd</i>	
Total Water Treatment Plant		13,000,000	\$4.00	\$54,200,000
Treated Water Storage				
		Volume	Current Construction Cost per Staff	Current Cost
		<i>gallons</i>	<i>per gallon</i>	
Total Treated Water Storage		8,500,000	\$1.25	\$10,625,000
Treated Water Pumping				
				Current Construction Cost per Staff
Pump Station				\$2,800,000
Pump Station				800,000
Total Treated Water Pumping				\$3,600,000
Raw Water Infrastructure				
				Current Construction Cost per Staff
NCWCD Pipeline (Carter Lake to Broomfield)				\$4,739,000
NCWCD Superior Louisville Pump Station				4,000,000
Louisville NWTP & NCWCD Connecting Line				5,900,000
Eldorado Intake Buildings & Dam				1,560,000
Harper Lake Pump Station				900,000
Louisville Pipeline Interconnect				581,000
Louisville Pipeline (16-in)				8,588,500
Louisville Lateral (open ditch)				250,000
Cherry Street Pipeline				2,393,000
Louisville Reservoir				1,450,000
Harper Lake				3,575,000
Total Raw Water Infrastructure				\$33,936,500
Fee Calculation				
Total Facilities Current Cost			\$	141,388,500
Less Principal on Outstanding Debt			\$	(5,900,000)
Water System Equity			\$	135,488,500
No. of Equivalent (a)				9,626
Water SDC, per equivalent			\$	14,076
(a) One equivalent represents the water service characteristics of a typical single family residential customer. One multifamily unit equals 0.8 equivalents. Nonresidential customer equivalents are based on 3/4-inch meter capacity ratios. 37				

**Water Utility
Development of Proposed Water Resource System Development Charge**

<u>Line No.</u>							
1	Average annual SFE usage, gallons	117,000	gallons				
2	Estimated water losses in City system (a)	15%		Includes 15% local distribution system water losses.			
3	Average annual production needed to serve an SFE, gallons	137,650	gallons				
4	Gallons per acre-foot	325,850	gallons				
5	SFE per acre-foot	2.367	SFE		2020	2016	2014
6	Estimated C-BT current cost per acre-foot	\$93,167	per acre-foot		\$93,167	\$41,000	\$28,833
7	Current C-BT cost per SFE	\$39,360	per SFE			17,319.78	

(a) Includes 15% local distribution system water losses.

TABLE WSDC-3

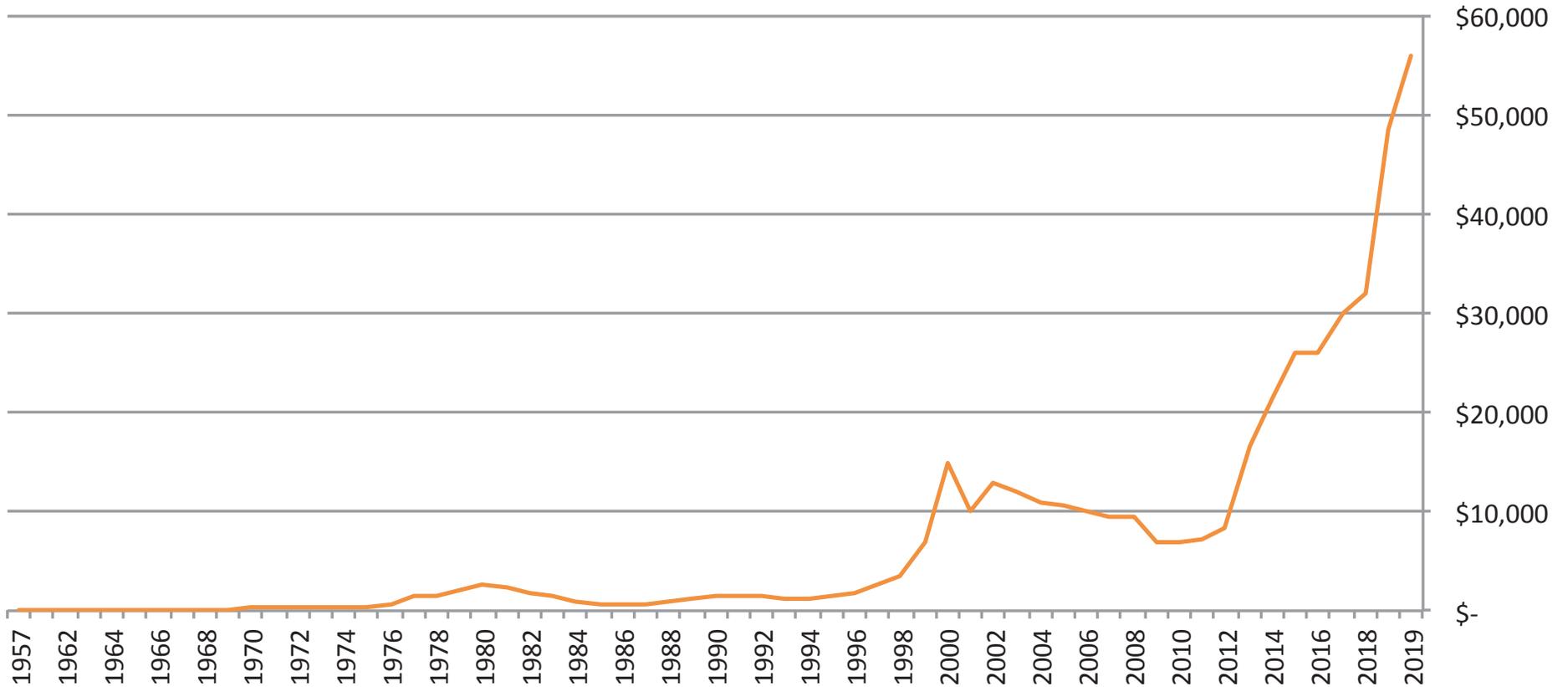
**Water Utility
Schedule of Water System Development Charges**

Meter Size	Existing	Proposed SDC			City Demand Ratios			
		Facilities	Water Resource	Total	Demand Amount	3/4-inch equiv		
3/4	\$ 30,500	\$ 14,100	\$ 39,400	\$ 53,500	117,000	1.00		
1	\$ 54,400	\$ 25,100	\$ 70,200	\$ 95,300	208,260	1.78	\$ 95,230	\$ 54,290
1 1/2	\$ 122,000	\$ 56,400	\$ 157,600	\$ 214,000	468,000	4.00	\$ 214,000	\$ 122,000
2	\$ 217,000	\$ 100,300	\$ 280,200	\$ 380,500	831,870	7.11	\$ 380,385	\$ 216,855
3	\$ 488,000	\$ 225,600	\$ 630,400	\$ 856,000	1,872,000	16.00	\$ 856,000	\$ 488,000
4	\$ 867,500	\$ 401,100	\$ 1,120,600	\$ 1,521,700	3,327,480	28.44	\$ 1,521,540	\$ 867,420

Water Rights Acquisition

CBT Market Rate
Incremental Cost

Price per CB-T Unit



Water Rights Acquisition

CBT Market Rate
August Auction of 171 Units
Average Price of \$55,867

Staff **Recommended** 3/4" Tap Fee

The Basis of this Meeting

\$14,100 **Facilities** (Equity)
\$39,400 **Water** (Incremental)

\$53,500 Total Water System Fee *

* Add provision for Developers to provide acceptable water in lieu Water Acquisition portion of fee.

Current Total Fee is \$30,500.



Luke Runyon @LukeRunyon · Aug 28

In the 2016 auction CBT units went for \$26,000-\$27,000 a piece, mostly bought by fast-growing north Denver suburbs. Today, they could go for upwards of \$60,000.

4 5 10



Luke Runyon ✓

@LukeRunyon

Follow

One unit of CBT water just went for \$60,000. That's a new record in the history of the project, built in the 1930s.



0:26 1,059 views

9:34 AM - 28 Aug 2019

5 Retweets 12 Likes



3 5 12



Luke Runyon ✓ @LukeRunyon · Aug 28

Most units selling for between \$55,000-\$60,000.

1 1 4

2000 - 2013 Tap Fee Structure Form

Advertised Fee by Tap Size.

Problem: Ordinance did not sell taps by only tap size.

Consequence: Lots of Developer Confusion.

Also: No Irrigation Meter Fee - City was not recovering true cost of irrigation meters.

NOTICE

TAP FEE TABLE ESTABLISHED BY THE CITY MANAGER IN ACCORDANCE WITH SECTION 13 OF THE LOUISVILLE MUNICIPAL CODE

Pursuant to Section 13.12.020 of the Louisville Municipal Code delegating to the City Manager the authority to establish City water tap fees on a quarterly basis, effective, July 1, 2010 the table of tap fees shall be as follows:

<u>Fee Calculations</u> <u>Deman (gpm)</u>	<u>Tap Size</u>	<u>Tap Fee</u>
0-22	¾"	\$24,140
23-45	1"	\$42,910
46-80	1 ½ "	\$96,540
81-140	2"	\$171,630
141-280	3"	\$386,160
281-500	4"	\$693,400

For taps larger than 4 inches, the tap fee and other terms and conditions of the issuance of the tap shall be established by written agreement approved by the City Council.

A single-family sewer tap fee for residential properties is \$3221.00.

The posted table of city water tap fees is to be paid for the 3rd calendar quarter of 2010.

By:

Malcolm Fleming

Malcolm Fleming
City Manager

cc: Building Safety Division
Planning Department
Public Relations Manager (website)
Central Files (original)
Public Works
Finance Department



TAP FEE CALCULATION FORM

WATER, SEWER, AND IRRIGATION TAP FEES ESTABLISHED PURSUANT TO THE LOUISVILLE MUNICIPAL CODE, DELEGATING AUTHORITY TO THE CITY MANAGER TO ESTABLISH TAP FEES ON A QUARTERLY BASIS EFFECTIVE OCTOBER 1, 2016.

Utilize this form to determine Water, Sewer, and Irrigation Tap Fees by completing the shaded cells. For each premises (separate building) a Tap Fee will be assessed. For Multifamily, Non-Residential, and Other Uses, please fill out a separate sheet for each premises. Additional information on Tap Fees and other utility service requirements may be found in the Louisville Municipal Code. For taps larger than 4 inches, the tap fee and other terms and conditions of the issuance of the tap shall be established by written agreement approved by the Louisville City Council.

Project Location: _____ Subdivision: _____ Filing: _____ Block: _____ Lot: _____

Property Owner: _____ Owner's Address (if different): _____

Owner's Email Address: _____ Owner's Phone #: _____

Job Contact Name (if different): _____ Contact Phone #: _____

Existing System Connector: _____ Y/N Meter Size: _____

WATER TAP FEES

1) Single-Family Residential Tap Fee (single-family, duplexes and mobile homes)

INSTRUCTIONS: Utilize this section to determine the water tap fee for the proposed residential development. Insert the number of single-family, duplex and/or mobile home units in the appropriate meter size category to determine the tap fee. Each unit of a duplex and each mobile home is considered to be equivalent to a single-family unit.

3/4" meter X _____ units X \$53,500 = \$ _____

1" meter X _____ units X \$95,300 = \$ _____

Total Single-Family Residential Tap Fee = \$ _____

Complete this section for each separately metered premises (separate building) and/or other use.

2) Multifamily Residential Tap Fee (townhouse, multifamily and senior independent living, as defined in Louisville Municipal Code)

INSTRUCTIONS: Provide fixture count and meter size. Utilize this section to determine the water tap fee for the proposed residential development. Insert the number of Townhouses, Multifamily or Senior Independent units and multiply the number of units by the associated tap fee to determine the total tap fee. Sum the total for each unit type, which will be the total tap fee for those units.

Fixture Count: _____ Meter Size: _____

Townhouse _____ units X \$42,800 = \$ _____

Multifamily _____ units X \$32,100 = \$ _____

Senior _____ units X \$16,050 = \$ _____

Total Cost = \$ _____

5 or more Townhouse or Multifamily Units: separate irrigation tap required, provide Plumbing Permit number for the separate irrigation tap: _____

No. of Units _____ (From above) X \$ 8,025 = \$ _____ (Total irrigation tap credit)

Townhouse and Multifamily premises with five or more units are required to obtain a separate irrigation tap. The separate irrigation tap allows for a credit to be applied to the per unit tap fee. The irrigation tap credit is calculated as the total number of units multiplied by the credit. Senior Independent Living Units are not eligible for the irrigation tap credit. (Irrigation tap information should be included in Section 4 on the next page)

Total Multifamily Residential Tap Fee = \$ _____ (Total Cost minus total irrigation tap credit)

CONTINUE ON THE OTHER SIDE

3) Non-Residential and Other Use Tap Fee (Non-Residential and Other Uses include; commercial, industrial, retail, institutional, pools, spas, water features)

1) Annual Indoor Demand _____ gal/yr
Instantaneous Demand _____ gpm
Other Usage _____ gal/yr
Total Demand _____ gal/yr

2) Meter Size _____ gpm
(from Meter Tap Application Form)
Meter Size (from Table)
(Based on Total Demand)

INSTRUCTIONS: Applicant to provide annual Indoor and Other Usage demand, calculated by a licensed engineer or architect. Non-Residential Uses are required to obtain a separate irrigation tap. Base Tap Fee (Table) corresponds to the fee associated with the Demand Budget that satisfies the majority of Total Demand. Additional Tap Fee is calculated by dividing the difference between Total Demand and the selected Demand Budget by 117,000, then multiplying by \$53,500. Add the Base Tap Fee and Additional Tap Fee to serve the Total Tap Fee.

In approved cases where Annual Demand has been estimated, the City of Louisville may monitor and verify annual usage. If annual usage exceeds the estimated Demand, the City of Louisville may impose an expansion charge based on the documented usage as subject to City of Louisville Municipal Code.

Written justification will be required for meter sizing difference in Annual and instantaneous Demand.

***Example: For a 250,000 gal/yr demand, the next lowest budget is 208,200 gallons, which corresponds to a fee of \$95,300. 250,000 - 208,200 = 41,740 gallons. 41,740 / 117,000 * \$53,501 = \$19,096.24.

Demand Budget (gallons)	Base Tap Fee (\$)	Meter Size (inch)	Meter Range (gpm)
117,000	\$53,500	3/4"	0-22
208,200	\$95,300	1"	23-45
488,000	\$214,000	1-1/2"	46-80
831,870	\$390,500	2"	81-140
1,872,000	\$658,000	3"	141-280
3,327,480	\$1,521,700	4"	281-500

Minimum Fee

Total Non-Residential and Other Use Tap Fee = \$ _____

IRRIGATION TAP FEES

4) Irrigation Tap Fee

Instantaneous Demand _____ gpm
Meter Size _____ (Sect. 3 Table)

Total Irrigated Area (sq. ft.) _____ Irrigation Demand (gallons/year) _____
X 15 gallons/sq. ft. = _____

Irrigation Demand (gallons/year) _____ Irrigation Tap Fee _____
/117,000 = \$53,500 = \$ _____

Number of Drip Taps _____ Drip Tap Fee _____
X \$13,375 = \$ _____

Total Irrigation Tap Fee = \$ _____ (sum of Irrigation Tap Fee and Drip Tap Fee)

INSTRUCTIONS: This section is to be used for Duplex, Multifamily, Townhouse, and Non-Residential developments. Total Irrigation Tap Fee is equal to the tap fee associated with Total Irrigation Demand and Drip Tap Fee for separate drip irrigation tap. Provide irrigation design showing total irrigated area and instantaneous demand for each zone, calculated by a licensed engineer or architect. Utilize maximum instantaneous demand for determining meter size. Irrigation Demand is calculated by multiplying the total irrigated area by 15 gallons per square foot. The minimum irrigation tap fee is set by the base tap fee for the associated size from the Table in Section 3.

In approved cases a drip irrigation tap may be allowed in conjunction with a primary irrigation tap. Drip irrigation tap(s) shall be used for small isolated locations, such as a roadway median. Each drip tap requires a separate 3/4" meter and may serve a total area up to 4,000 square feet with a total drip system demand of 5 gallons per minute or less. Any area irrigated with a drip irrigation tap shall not be included in the Total Irrigated Area used in for the irrigation tap calculation.

SEWER TAP FEES

5) Sewer Tap Fee

Residential Sewer Tap Fee

Single-Family _____ units X \$5,500 = \$ _____

Townhouse _____ units X \$4,400 = \$ _____

Multifamily _____ units X \$4,400 = \$ _____

Senior _____ units X \$ 3,300 = \$ _____

Commercial Sewer Tap Fees

3/4" Meter _____ X \$5,500 = \$ _____ 2" Meter _____ X \$39,200 = \$ _____

1" Meter _____ X \$9,800 = \$ _____ 3" Meter _____ X \$88,000 = \$ _____

1 1/2" Meter _____ X \$22,000 = \$ _____ 4" Meter _____ X \$156,500 = \$ _____

Total Sewer Tap Fee = \$ _____

INSTRUCTIONS: Utilize this section to determine the sewer tap fee for the proposed development. Insert the number of Single-Family, Townhouse, Multifamily, or Senior Independent units and multiply the number of units by the associated tap fee to determine the total tap fee. Single-Family category includes each mobile home and each unit in a duplex. Commercial tap fees are charged based on water meter size.

CITY USE ONLY BELOW DASHED LINE

Form Reviewed By: _____ Date: _____

Payment Received by: _____ Date: _____

2013 - Present Tap Fee Form

Categorized Fees by User Added Irrigation Tap Fee Review Annual and Instant Demands Tap Credits on Cash Paid or Volumetric

TAP FEE COMPARSION TABLE

Municipality	Water	Sewer	Storm	Total
2019 Broomfield	\$ 23,577	\$ 12,559	N/A	\$ 36,136
2020 Broomfield (est)	\$ 24,756	\$ 12,559	N/A	\$ 37,315
2019 Erie	\$ 30,380	\$ 5,200	\$ 1,612	\$ 37,192
2019 Lafayette	\$ 19,760	\$ 5,300	\$ 9,570	\$ 34,630
2019 Superior	\$ 23,340	\$ 4,803	\$ 2,982	\$ 31,125
2020 Superior (est)	\$ 24,040	\$ 4,947	\$ 3,071	\$ 32,059
2019 Louisville	\$ 30,500	\$ 4,600	N/A	\$ 35,100
2020 Louisville (proposed)	\$ 53,500	\$ 5,500	N/A	\$ 59,000

Community Comparison

Louisville Raised Fees in 2016

Other Communities Caught Up

We React Faster Than Other Communities

Current Policy

13.12

- Requires City Manager to establish a table of City water tap fees annually. Established in 2000 by Ordinance 2000-1339.
- Tap fees shall be based on and used for growth related capital expansion costs for water resources, water supply, water storage, transmission, treatment and distribution facilities, related costs factors.
- Tap fees shall reflect the City's overall costs incurred to provide services for which the tap is requested and for which the tap is designed.



City Council Options

- **Take No Action**

1. Staff would increase fee in 1st Quarter 2020.
2. Staff would modify LMC to allow Developer provided water for discount on tap fee.
3. Developer provided water info would be added to tap fee form.

- **City Council Calls Up** by Resolution call up a current table of tap fees adopted by the City Manager and require adjustments consistent with 13.12.

- **City Council Amends** Section 13.12.040 to change how tap fees are established. This will require additional process, possible analysis, and additional timeline.



**ORDINANCE NO. 1339
SERIES 2000**

AN ORDINANCE DELEGATING TO THE CITY ADMINISTRATOR THE AUTHORITY TO ESTABLISH CITY WATER TAP FEES ON A QUARTERLY BASIS AND AMENDING CERTAIN SECTIONS OF CHAPTER 13.12 OF THE LOUISVILLE MUNICIPAL CODE IN CONNECTION THEREWITH.

WHEREAS, the City Council finds that the costs of water necessary to supply the City's waterworks, as well as other costs to be paid through the City's water tap fee, have increased dramatically in recent years; and

WHEREAS, the City Council finds that the increases it has adopted to the City's water tap fee have not kept pace with the increases in such costs; and

WHEREAS, the City Council finds that adjustment of the City water tap fee by ordinance is a cumbersome procedure that does not allow timely adjustments to the water tap fee to reflect increases in such costs; and

WHEREAS, the City Council finds that, in order to allow for timely adjustments of the water tap fee to reflect increases in such costs, the tap fee should be set and adjusted by the City Administrator on a quarterly basis, subject to certain guidelines that will enable the City Administrator to carry out the intent of the City Council; and

WHEREAS, the City Council has determined that delegating to the City Administrator the authority and responsibility to set water tap fees in the most efficient means to set and maintain accurate and up-to-date water tap fees; and

WHEREAS, the City Council has determined that such a method of setting the City's water tap fee is necessary to properly and adequately finance the services provided by the City's water activity enterprise.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:

Section 1. Subsections C and D of Section 13.12.020 of the Louisville Municipal Code are hereby amended to read as follows (words added are underlined; words deleted are ~~stricken through~~):

C. The amount of the tap fee for residential units shall be determined by the city and shall be based upon the size of the tap, as calculated pursuant to the provisions of the International ~~Uniform~~ Plumbing Code then in effect, and by

reference to the ~~appropriate~~ table of fees established by the city administrator in accordance with as set forth in section 13.12.040; provided that the minimum tap fee paid for each multifamily unit other than a townhouse after payment in full for the first tap issued shall be 60 percent of the existing charge for a three-quarter-inch tap and provided that the minimum tap fee paid for each townhouse in a group of attached "townhouses," as defined in Code section 17.08.560, after payment in full for the first tap issued, shall be 80 percent of the existing charge for a three-quarter-inch tap.

D. The tap fee for nonresidential units shall be determined by the city and shall be based upon the size of the tap, as calculated pursuant to the provisions of the International Uniform Plumbing Code then in effect, and Table B of by reference to the table of fees established by the city administrator in accordance with section 13.12.040.

Section 2. Subsection C of Section 13.12.030 of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken through~~):

C. In the event a consumer desires to provide automatic fire-control protection for the consumer's premises and for emergency service only, which requires a tap larger than three-fourths-inch, the tap fee charged shall be based only on the demand set forth in the International Plumbing Code and by reference to the table of fees established by the city administrator in accordance with Table B of section 13.12.040. The user shall be required to pay the full cost of installation of the service, including all pipe, valves, and valve boxes.

Section 3. The title of Section 13.12.040, and Subsections A and B of Section 13.12.040, of the Louisville Municipal Code are hereby amended to read as follows (words added are underlined; words deleted are ~~stricken through~~):

Sec. 13.12.040. Tap Fee--~~Table B.~~

A. The tap fee shall be computed by reference to Sections 13.12.020 and 13.12.030, ~~the appropriate classification in Table B, below, and~~ subsection D of this section, if applicable, and a table of fees established by the city administrator. On or before July 17, 2000, for the balance of the third calendar quarter of 2000, and by the first day of each calendar quarter thereafter, the city administrator shall by order establish a table of city water tap fees to be paid for the ensuing calendar quarter. The tap fees shall classified according to the size of the tap requested, for taps up to four inches. The tap fees shall be based on and used for growth related capital expansion costs of water supply, water storage, transmission, treatment and distribution facilities, related costs and factors. The tap fees shall reflect the city's

overall costs incurred to provide services for which the tap is requested and for which the tap fee is designed. The city council may by resolution call up a current table of tap fees adopted by the city administrator and require adjustments thereto that are consistent with the provisions of this chapter, which changes shall remain effective for the balance of the calendar quarter. The current table of tap shall be posted at city hall. All applicants for a water tap shall be advised as to the existence of table of tap fees and a copy thereof shall be made available to such applicants.

TABLE B

Effective January 25, 2000

Fee Calculations

Demand (gpm)	Tap Size	Tap Fee
0-22	3/4"	\$13,400
23-45	1"	19,800
46-80	1 1/2"	39,700
81-140	2"	79,400
141-280	3"	178,600
281-500	4"	357,100

For taps larger than 4 inches, the tap fee and other terms and conditions of the issuance of the tap shall be established by written agreement approved by the city council.

B. For landscape areas using drip irrigation systems, tap fees shall be as set forth in the table of fees established by the city administrator in accordance with section 13.12.040.A listed below. Drip irrigation tap fees shall be limited to computable irrigation system flow rates of five gallons per minute, or less, and to areas less than 4,000 square feet. Drip irrigation taps are not available for landscaped areas incorporating spray irrigation landscaping, regardless of size. Drip irrigation systems shall be physically restricted in flow capacity to five gallons per minute or less.

Effective January 1, 1993,

Demand (gpm)	Tap fee
0-5	\$1,650.00

Section 4. Section 13.12.050 of the Louisville Municipal Code are hereby amended to read as follows (words added are underlined; words deleted are ~~stricken through~~):

Sec. 13.12.040. Tap Fee--Outside city limits.

For any tap applied for where the service requested is out of the city limits, the fee will be two times the fee as established pursuant to calculated in Table B of section 13.12.040.

Section 5. This ordinance shall take effect July 17, 2000, provided the same has been previously published as required by C.R.S. section 31-16-105.

Section 6. If any portion of this ordinance is held to be invalid for any reason, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance and each part hereof irrespective of the fact that any one part be declared invalid.

Section 7. The repeal or modification of any provision of the Municipal Code of the City of Louisville by this ordinance shall not release, extinguish, alter, modify, or change in whole or in part any penalty, forfeiture, or liability, either civil or criminal, which shall have been incurred under such provision, and each provision shall be treated and held as still remaining in force for the purpose of sustaining any and all proper actions, suits, proceedings, and prosecutions for the enforcement of the penalty, forfeiture, or liability, as well as for the purpose of sustaining any judgment, decree, or order which can or may be rendered, entered, or made in such actions, suits, proceedings, or prosecutions.

Section 8. All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED PUBLISHED this 16th day of May, 2000.



Tom Davidson

Tom Davidson, Mayor

Nancy Varra

Nancy Varra, City Clerk

APPROVED AS TO FORM:

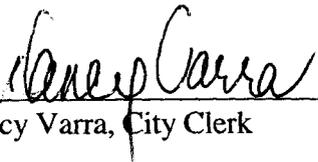


Griffiths, Tanoue & Light, P.C.
City Attorney

PASSED AND ADOPTED ON SECOND AND FINAL READING, this 20th day of
June, 2000.



Tom Davidson, Mayor



Nancy Varra, City Clerk

**SUBJECT: APPROVAL OF RESOLUTION NO. 38, SERIES 2019, A
RESOLUTION SETTING CERTAIN FEES, RATES, AND
CHARGES FOR THE CITY OF LOUISVILLE**

DATE: NOVEMBER 4, 2019

**PRESENTED BY: MEGAN DAVIS, DEPUTY CITY MANAGER
EMILY HOGAN, ASSISTANT CITY MANAGER FOR
COMMUNICATIONS AND SPECIAL PROJECTS
HEATHER BALSER, CITY MANAGER**

SUMMARY:

Each year the City Council adopts a Resolution setting certain fees, rates and charges for the upcoming year. The attached resolution for Council consideration sets those fees, rates and charges for 2020. City Council, through Ordinance 1603, Series 2011, also authorized the City Manager to set certain fees, rates and charges not otherwise set by the Council.

The fees set by the City Manager include such things as fees for photo copies, maps and documents, development application reviews, recreation center programs and classes, rental rates for various facilities, and charges for cemetery plots and services. The City Manager sets these fees and charges to recover costs and defray expenses and not as a mechanism for raising revenue.

The City Council fees proposed through Resolution 38, Series 2019 reflect only minor changes to those fees and charges subject to a 5% inflator, as well as fee increases that reflect market rate changes or changes required by the state of Colorado.

Attachment A of Resolution 38, Series 2019 includes the following changes:

- Increases to the Liquor License fees reflecting an increase in the state license fees.
- No changes to Tables 4 for the Contractor's License, Applications and Fees.
- No changes to Table 5 for Sewer Tap fees.
- Changes to Sewer Rates and Water Rates as approved through Resolution 11, Series 2019, and effective May 1, 2019.
- Changes to Table 9 to reflect the Council adopted residential refuse and recycling rates.
- No changes to Table 10 for Excavation, Right of Way and Easement work permit fees.

The City Manager's fee changes also reflect a 5% inflator applied to those subject to this annual increase. For 2020, staff applied the cumulative inflation rate (5% per year) to those fees that were not increased in 2019, and provided rounding to the nearest dollar increment. In addition, this fee table includes all Recreation Center admission,

rental, and program changes discussed through the FY 2020 budget process, as well as water tap fee increases resulting from the increased costs of water (see attachment 5) that have been discussed by both the Utility and Finance Committees.

The packet includes two versions of both the City Council fees, rates and charges and the City Managers fees, rates and charges – one table listing the prior year and proposed 2020 fee, and the final fees with just the 2020 fees listed.

FISCAL IMPACT:

As a whole, charges for services make up a significant portion of the City’s revenue. The overall fiscal impacts of the proposed changes in the Resolution are relatively minor as they represent minor changes to smaller fees.

PROGRAM/SUB-PROGRAM IMPACT:

City Council approval of 2020 fees, rates and charges supports the Finance, Accounting and Tax administration sub-program goal of providing financial services in an efficient and effective manner. It also supports the Governance and Administration goal to ensure the City has the financial capacity to sustain Council adopted levels of service.

RECOMMENDATION:

Staff recommends approval of Resolution 38, Series 2019.

ATTACHMENT(S):

1. Resolution 38, Series 2019 and Attachment A
2. Schedule of 2019 and 2020 City Council fee comparisons
3. Schedule of 2020 fees to be set by the City Manager and Attachment 1
4. Schedule of 2019 and 2020 City Manager fee comparisons
5. Memo to City Manager regarding Tap Fee changes

STRATEGIC PLAN IMPACT:

<input checked="" type="checkbox"/>	 Financial Stewardship & Asset Management	<input checked="" type="checkbox"/>	 Reliable Core Services
<input type="checkbox"/>	 Vibrant Economic Climate	<input type="checkbox"/>	 Quality Programs & Amenities
<input type="checkbox"/>	 Engaged Community	<input type="checkbox"/>	 Healthy Workforce
<input type="checkbox"/>	 Supportive Technology	<input type="checkbox"/>	 Collaborative Regional Partner

**RESOLUTION NO. 38
SERIES 2019**

**A RESOLUTION SETTING CERTAIN FEES, RATES, AND CHARGES FOR
THE CITY OF LOUISVILLE, COLORADO**

WHEREAS, pursuant to the Louisville Municipal Code, the City Council is authorized to establish certain fees, rates, and charges by resolution; and

WHEREAS, the City Council wishes to establish by this resolution the amounts of certain fees, rates, and charges effective January 1, 2020.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:

SECTION 1. Pursuant to authorization in the Louisville Municipal Code, the Louisville City Council hereby establishes certain fees, rates, and charges in accordance with the schedules and tables attached and made a part hereof.

SECTION 2. The fees, rates, and charges set by this resolution shall be effective January 1, 2020 and may thereafter be amended from time to time by resolution of the City Council.

SECTION 3. The fees, rates, and charges set by this resolution shall supersede and replace any fees, rates, or charges previously set or adopted by the City Council for the same purpose. However, the same shall not be deemed to release, extinguish, alter, modify, or change in whole or in part any liability which shall have been previously incurred, and the superseded or replaced provision shall be treated and held as still remaining in force for the purpose of sustaining any judgment, decree, or order.

SECTION 4. If any portion of this resolution is held to be invalid for any reason, such decisions shall not affect the validity of the remaining portions hereof.

PASSED AND ADOPTED this 4th day of November, 2019.

Robert P. Muckle, Mayor

ATTEST:

Meredyth Muth, City Clerk

**Resolution 38, Series 2019
Exhibit A**

Code Section Ref.	Fee Description	2020 Fee	Additional Fee Information	Staff Responsibility
1.24.010	Credit on Fine or for time served	55.00	Per 24hrs.	Deputy Manager
3.20.402.C	Sales/Use Tax License	25.00		Finance Director
5.04.070	Business Registration		Replaced by Sales/Use Tax License	
5.08.040	Liquor Application and registration fee		List, see Table 1	Deputy Manager
5.08.050	Liquor License annual fees (local)		List, see Table 1	Deputy Manager
5.08.070	Liquor Special Event Permit fees		List, see Table 1	Deputy Manager
5.10.060/5.11.060	Marijuana Establishment - Application fees	3,150.00	plus \$100 for fingerprinting and background check	Deputy Manager
5.10.090.C/5.11.100C	Marijuana Establishment - Late Renewal Application Fee	525.00		Deputy Manager
5.10.100/5.11.100/110	Marijuana Establishment - Annual Renewal/Operating License Fee	1,575.00		Deputy Manager
5.10.130.D/5.11.140D	Marijuana Establishment - Modification of Premises	1,575.00		Deputy Manager
5.10.110.B/5.11.120B	Marijuana Establishment - Change in Location Application Fee	1,575.00		Deputy Manager
5.10.130.C/5.11.140C	Marijuana Establishment - Transfer of Ownership Application Fee	3,150.00		Deputy Manager
5.12.020	Contractor's Licenses, application and fee		List, see Table 4	Planning Director
5.16.040	Massage Parlor, Application Fee	365.00		Deputy Manager
5.16.130	Massage Parlor, Initial fee, and annual renewal	365.00	\$150 each renewal	Deputy Manager
5.18.050	Sexually Oriented Businesses, License fee	210.00	Annual	Planning Director
	Sexually Oriented Businesses, Manager fee	55.00		Planning Director
	Sexually Oriented Businesses, Application Fee	525.00		Planning Director
5.20.050	Cable TV system - New Application	1,050.00		Deputy Manager
	Cable TV system - Transfer or Assignment	525.00		Deputy Manager
6.12.060	Dog License - Spayed or Neutered	11.00		Deputy Manager
	Dog License - Un-Spayed or Un-Neutered	16.50		Deputy Manager
6.20.010	Fowl running at large	0.25	Per fowl	Police Chief
8.08.030	Cutting Weeds, recoup administrative costs	155.00	Up to	Parks Director
8.12.200	Arborist License	33.00	Annual	Parks Director
8.40.050	Pest Control, recoup administrative costs	53.00	Up to	Police Chief
8.64.090	Residential Refuse and Recycling		List, see Table 9 (updated September 3, 2013, Resolution 39, 2013)	Public Works Director
9.40.050	Live Music event application fee	22.00		Deputy Manager
9.60.010	Failure to return processing fee, plus cost of item	6.00		Library Director
10.12.230	Bicycle License Fee		No charge	Police Chief
10.18.030	Parking Permit Fee		No parking districts currently exist. Fee established by City Council.	City Manager
12.12.030	Excavation Permit		List, see Table 10	Public Works Director

Code Section Ref.	Fee Description	2020 Fee	Additional Fee Information	Staff Responsibility
13.08.130	Turn on water after the violation of supplying water to others	45.00		Public Works Director
13.24.030	Sewer Tap (residential and non-residential)		List, see Table 5	Public Works Director
13.12.090	Water Rates for Usage, residential and non-residential		List, see Table 7	Public Works Director
	Inside City Limits			Public Works Director
	Outside City Limits		Double In-City rates from Table 7	Public Works Director
13.12.080	Bulk Water Rate			Public Works Director
	Weekly Permit Fee	50.00		Public Works Director
	Deposit for Meter	2,500.00		Public Works Director
	Per 1,000 gallons	9.23	\$9.23/1,000 gallons - beginning with the first gallon	Public Works Director
13.28.030	Residential and Non-residential Sewer rates		List, see Table 6	Public Works Director
13.32.110	Cost Recovery Fees for Wastewater (Annual):			Public Works Director
	Significant Contributor	1,000.00		Public Works Director
	Small Significant Contributor	500.00		Public Works Director
	Potential Contributor (Annual):			Public Works Director
	Class A	500.00		Public Works Director
	Class B	250.00		Public Works Director
	Class C	100.00		Public Works Director
	Class D	50.00		Public Works Director
13.32.125	Surcharge rate for excess BOD and TSS (49 - 2017)	0.58	BOD per pound	Public Works Director
	(Resolution 49, Series 2017)	0.58	TSS per pound	Public Works Director
	(Resolution 49, Series 2017)	0.58	Oil and Grease per pound	Public Works Director
13.37.040 E 1.	Storm water Utility Service Fee:			Public Works Director
	Single Family Residential (Resolution 15, Series 2017)	5.58	Per month - Single and Multi Family	Public Works Director
	All Others (Resolution 15, Series 2017)	5.58	SF of impervious area/3,500 times \$4.23	Public Works Director
14.16.110	Parks, alcohol use		Deposit	Parks Director
Section 15, various	Building Permits, Inspections, and Review Fees		List, see Table 8	Planning Director
15.20.040	Mobile Home, licenses, permits, deposits and fees	11.00	Installer's License	Planning Director
		33.00	Water Deposit	Planning Director
15.24.030	Mobile Home Park operator license	11.00	Operator License	Planning Director
17.20.025	Parking Improvement Fee - Downtown (Resolution 25, 2017)	20,898.00	Per parking space	Planning Director

Exhibit A

Table 1: Liquor License Fees

License Type	City			State		
	Application Fee	License Fee	Total Local Fees	Application Fee (State)	License Fee (State)	Total State Fees
Beer & Wine						
New	650.00	48.75	698.75	1,550.00	351.25	1,901.25
Transfer	525.00	48.75	573.75	1,550.00	351.25	1,901.25
Renewal	50.00	48.75	98.75	0.00	351.25	351.25
H & R						
New	650.00	75.00	725.00	1,550.00	500.00	2,050.00
Transfer	525.00	75.00	600.00	1,550.00	500.00	2,050.00
Renewal	50.00	75.00	125.00	0.00	500.00	500.00
Tavern						
New	650.00	75.00	725.00	1,550.00	500.00	2,050.00
Transfer	525.00	75.00	600.00	1,550.00	500.00	2,050.00
Renewal	50.00	75.00	125.00	0.00	500.00	500.00
Liquor Store						
New	650.00	22.50	672.50	1,550.00	227.50	1,777.50
Transfer	525.00	22.50	547.50	1,550.00	227.50	1,777.50
Renewal	50.00	22.50	72.50	0.00	227.50	227.50
Arts						
New	650.00	41.25	691.25	1,550.00	308.75	1,858.75
Transfer	525.00	41.25	566.25	1,550.00	308.75	1,858.75
Renewal	50.00	41.25	91.25	0.00	308.75	308.75
Drugstore						
New	650.00	22.50	672.50	1,300.00	227.50	1,527.50
Transfer	500.00	22.50	522.50	1,300.00	227.50	1,527.50
Renewal	50.00	22.50	72.50	0.00	227.50	227.50
Racetrack						
New	650.00	75.00	725.00	1,550.00	500.00	2,050.00
Transfer	525.00	75.00	600.00	1,550.00	500.00	2,050.00
Renewal	50.00	75.00	125.00	0.00	500.00	500.00
Club						
New	650.00	41.25	691.25	1,550.00	308.75	1,858.75
Transfer	525.00	41.25	566.25	1,550.00	308.75	1,858.75
Renewal	50.00	41.25	91.25	0.00	308.75	308.75
FMB Off Premise						
New	650.00	3.75	653.75	1,550.00	96.25	1,646.25
Transfer	525.00	3.75	528.75	1,550.00	96.25	1,646.25
Renewal	50.00	3.75	53.75	0.00	96.25	96.25
FMB On						
New	650.00	3.75	653.75	1,550.00	96.25	1,646.25
Transfer	525.00	3.75	528.75	1,550.00	96.25	1,646.25
Renewal	50.00	3.75	53.75	0.00	96.25	96.25
Brew Pub						
New	650.00	75.00	725.00	1,550.00	750.00	2,300.00
Transfer	525.00	75.00	600.00	1,550.00	750.00	2,300.00
Renewal	50.00	75.00	125.00	0.00	750.00	750.00
Art Gallery Permit						
	25.00	25.00	50.00	0	100	71.25

Exhibit A

License Type	City			State		
	Application Fee	License Fee	Total Local Fees	Application Fee (State)	License Fee (State)	Total State Fees
Lodging & Ent.						
New	650.00	75.00	725.00	1,550.00	500.00	2,050.00
Transfer	525.00	75.00	600.00	1,550.00	500.00	2,050.00
Renewal	50.00	75.00	125.00	0.00	500.00	500.00
Mini Bar w/H & R						
New	0.00	325.00	325.00	0.00	500.00	500.00
Transfer	0.00	325.00	325.00	0.00	500.00	500.00
Renewal	0.00	325.00	325.00	0.00	500.00	500.00
Bed & Breakfast						
New	0.00	25.00	25.00	0.00	50.00	50.00
Transfer	0.00	25.00	25.00	0.00	50.00	50.00
Renewal	0.00	25.00	25.00	0.00	50.00	50.00
Change of Location	525.00	0.00	525.00	150.00	0.00	150.00
Change of Trade Name	0.00	0.00	0.00	50.00	0.00	50.00
Manager's Registration	75.00	0.00	75.00	75.00	0.00	75.00
Expansion Add OP (each)	0.00	0.00	0.00	100.00	0.00	100.00
Resort Complex facility Permit (each)	100.00	0.00	100.00	500.00	0.00	500.00
Corp./LLC Changes (charged locally or by State)	100.00	0.00	100.00	Per Person 100.00	0.00	100.00
Temporary Permit	100.00	0.00	100.00	0.00	0.00	0.00
Late Renewal	500.00	0.00	500.00	500.00	0.00	500.00
Modification	0.00	0.00	0.00	150.00	0.00	150.00
Packet Fee	25.00	0.00	25.00	0.00	0.00	0.00
Duplicate License	0.00	0.00	0.00	50.00	0.00	50.00
Master File (Per Person)	0.00	0.00	0.00	25.00	0.00	25.00
Special Event Liquor	25.00	25.00	50.00	0.00	25.00	25.00
Special Event 3.2%	25.00	10.00	35.00	0.00	10.00	10.00
Concurrent Review (New Applicants)	0.00	0.00	0.00	100.00	0.00	100.00
Background Investigation & fingerprinting	0.00	Per person 100.00	100.00	0.00	0.00	0.00

Exhibit A

Table 4: Contractor's License, Application, and Fee

Type	Class	Fee
GA	Building Contractor Class A*	\$150.00
GB	Building Contractor Class B*	\$100.00
GC	Building Contractor Class C*	\$ 75.00
D	Building Contractor Class D (Other)	\$ 75.00
P	Plumbing Contractor (both commercial and residential)	\$100.00
M	Mechanical Contractor (both commercial and residential)	\$100.00
PM	Plumbing & Mechanical Contractor (both commercial & residential)	\$100.00
PME	Plumbing, Mechanical, & Electrical (both commercial & residential)	\$100.00
E	Electrical Contractor Registration	\$ 0.00
S	Solar Contractor	\$ 75.00

*ICC Test required: General Building Contractor A, B, or C LICENSES require copy of corresponding passing test result of ICC National test prior to issuing license.

Table 5: Sewer Tap Fees

Unit	Amount
Single Family Residential, per Unit	\$ 4,600.00
Multi-Family, per Unit (80% SFE)	\$ 3,680.00
Nonresidential, by Meter Size	
3/4"	\$ 4,600.00
1"	\$ 8,200.00
1 1/2 "	\$ 18,400.00
2"	\$ 32,800.00
3"	\$ 73,600.00
4"	\$130,900.00

Table 6: Residential Sewer Usage Fees (Per Resolution 11, Series 2019)



SEWER RATES

Effective May 1, 2019, sewer rates for all accounts inside city limits are as follows (outside city limits = double these rates):

**MAY 1, 2019 SINGLE FAMILY RESIDENTIAL
SEWER RATES**

RATE	DESCRIPTION
\$4.82	Monthly Volume Charge, \$ per 1,000 gallons of Average Winter Consumption (AWC). AWC = (December+January+February)/3
\$2.77	Monthly Billing Charge, \$ per Bill
\$6.57	Monthly Readiness to Serve Charge, \$ per Bill

**MAY 1, 2019 MULTI FAMILY RESIDENTIAL
SEWER RATES**

RATE	DESCRIPTION
\$4.82	Monthly Volume Charge, \$ per 1,000 gallons of Average Winter Consumption (AWC). AWC = (December+January+February)/3
\$2.77	Monthly Billing Charge, \$ per Bill
\$6.57	Monthly Readiness to Serve Charge, \$ per Dwelling Unit

Exhibit A

Table 6 (continued): Non-residential Sewer Usage Fees (Per Resolution 11, Series 2019)

MAY 1, 2019 COMMERCIAL SEWER RATES	
RATE	DESCRIPTION
\$4.82	Monthly Volume Charge, \$ per 1,000 gallons
\$2.77	Monthly Billing Charge, \$ per Bill
	Monthly Readiness to Serve Charge, \$ per Bill
\$6.57	3/4" Meter
\$11.48	1" Meter
\$25.16	1-1/2" Meter
\$44.55	2" Meter
\$99.50	3" Meter
\$176.33	4" Meter
\$258.13	6" Meter

Table 7: Residential Water Rates (Per Resolution 11, Series 2019)



WATER RATES

Effective May 1, 2019, water rates for all accounts inside city limits are as follows (outside city limits = double these rates):

MAY 1, 2019 RESIDENTIAL WATER RATES - 3/4" METER

GALLONS	RATE
Zero - 5,000	\$18.99 (minimum monthly charge)
5,001 - 20,000	\$18.99 for the first 5,000 gallons, plus \$5.47 for each additional 1,000 gallons (or fraction thereof)
20,001 - 30,000	\$101.04 for the first 20,000 gallons, plus \$13.35 for each additional 1,000 gallons (or fraction thereof)
30,001 - 40,000	\$234.54 for the first 30,000 gallons, plus \$14.71 for each additional 1,000 gallons (or fraction thereof)
40,001 - 50,000	\$381.64 for the first 40,000 gallons, plus \$15.72 for each additional 1,000 gallons (or fraction thereof)
50,001 and over	\$538.84 for the first 50,000 gallons, plus \$16.77 for each additional 1,000 gallons (or fraction thereof)

Exhibit A

Table 7 (continued): Residential Water Rates (Per Resolution 11, Series 2019)

MAY 1, 2019 RESIDENTIAL WATER RATES - 1" METER

GALLONS	RATE
Zero - 5,000	\$18.99 (minimum monthly charge)
5,001 - 20,000	\$18.99 for the first 5,000 gallons, plus \$5.47 for each additional 1,000 gallons (or fraction thereof)
20,001 - 30,000	\$101.03 for the first 20,000 gallons, plus \$13.62 for each additional 1,000 gallons (or fraction thereof)
30,001 - 40,000	\$237.23 for the first 30,000 gallons, plus \$14.71 for each additional 1,000 gallons (or fraction thereof)
40,001 - 50,000	\$384.33 for the first 40,000 gallons, plus \$15.72 for each additional 1,000 gallons (or fraction thereof)
50,001 and over	\$541.53 for the first 50,000 gallons, plus \$16.77 for each additional 1,000 gallons (or fraction thereof)

Exhibit A

Table 7 (continued): Commercial, Irrigation, and Multi-Family Water Rates (Per Resolution 11, Series 2019)

MAY 1, 2019 COMMERCIAL, IRRIGATION, AND MULTIFAMILY WATER RATES - 3/4" METER	
GALLONS	RATE
Zero - 20,000	\$10.45 (minimum monthly charge), plus \$3.02 for each 1,000 gallons (or fraction thereof)
20,001 - 30,000	\$70.85 for the first 20,000 gallons, plus \$7.50 for each additional 1,000 gallons (or fraction thereof)
30,001 - 40,000	\$145.85 for the first 30,000 gallons, plus \$8.10 for each additional 1,000 gallons (or fraction thereof)
40,001 - 50,000	\$226.85 for the first 40,000 gallons, plus \$8.66 for each additional 1,000 gallons (or fraction thereof)
50,001 and over	\$313.45 for the first 50,000 gallons, plus \$9.23 for each additional 1,000 gallons (or fraction thereof)

Exhibit A

Table 7 (continued): Commercial, Irrigation, and Multi-Family Water Rates (Per Resolution 11, Series 2019)

MAY 1, 2019 COMMERCIAL, IRRIGATION, AND MULTIFAMILY WATER RATES - 1" METER	
GALLONS	RATE
Zero - 40,000	\$20.90 (minimum monthly charge), plus \$3.02 for each 1,000 gallons (or fraction thereof)
40,001 - 60,000	\$141.70 for the first 40,000 gallons, plus \$7.50 for each additional 1,000 gallons (or fraction thereof)
60,001 - 80,000	\$291.70 for the first 60,000 gallons, plus \$8.10 for each additional 1,000 gallons (or fraction thereof)
80,001 - 100,000	\$453.70 for the first 80,000 gallons, plus \$8.66 for each additional 1,000 gallons (or fraction thereof)
100,001 and over	\$626.90 for the first 100,000 gallons, plus \$9.23 for each additional 1,000 gallons (or fraction thereof)

Exhibit A

Table 7 (continued): Commercial, Irrigation, and Multi-Family Water Rates (Per Resolution 11, Series 2019)

MAY 1, 2019 COMMERCIAL, IRRIGATION, AND MULTIFAMILY WATER RATES - 1-1/2" METER	
GALLONS	RATE
Zero - 80,000	\$31.35 (minimum monthly charge), plus \$3.02 for each 1,000 gallons (or fraction thereof)
80,001 - 120,000	\$272.95 for the first 80,000 gallons, plus \$7.50 for each additional 1,000 gallons (or fraction thereof)
120,001 - 160,000	\$572.95 for the first 120,000 gallons, plus \$8.10 for each additional 1,000 gallons (or fraction thereof)
160,001 - 200,000	\$896.95 for the first 160,000 gallons, plus \$8.66 for each additional 1,000 gallons (or fraction thereof)
200,001 and over	\$1,243.35 for the first 200,000 gallons, plus \$9.23 for each additional 1,000 gallons (or fraction thereof)

Exhibit A

Table 7 (continued): Commercial, Irrigation, and Multi-Family Water Rates (Per Resolution 11, Series 2019)

MAY 1, 2019 COMMERCIAL, IRRIGATION, AND MULTIFAMILY WATER RATES - 2" METER	
GALLONS	RATE
Zero - 160,000	\$41.75 (minimum monthly charge), plus \$3.02 for each 1,000 gallons (or fraction thereof)
160,001 - 240,000	\$524.95 for the first 160,000 gallons, plus \$7.50 for each additional 1,000 gallons (or fraction thereof)
240,001 - 320,000	\$1,124.95 for the first 240,000 gallons, plus \$8.10 for each additional 1,000 gallons (or fraction thereof)
320,001 - 400,000	\$1,772.95 for the first 320,000 gallons, plus \$8.66 for each additional 1,000 gallons (or fraction thereof)
400,001 and over	\$2,465.75 for the first 400,000 gallons, plus \$9.23 for each additional 1,000 gallons (or fraction thereof)

Exhibit A

Table 7 (continued): Commercial, Irrigation, and Multi-Family Water Rates (Per Resolution 11, Series 2019)

MAY 1, 2019 COMMERCIAL, IRRIGATION, AND MULTIFAMILY WATER RATES - 3" METER	
GALLONS	RATE
Zero - 320,000	\$83.63 (minimum monthly charge), plus \$3.02 for each 1,000 gallons (or fraction thereof)
320,001 - 480,000	\$1,050.03 for the first 320,000 gallons, plus \$7.50 for each additional 1,000 gallons (or fraction thereof)
480,001 - 640,000	\$2,250.03 for the first 480,000 gallons, plus \$8.10 for each additional 1,000 gallons (or fraction thereof)
640,001 - 800,000	\$3,546.03 for the first 640,000 gallons, plus \$8.66 for each additional 1,000 gallons (or fraction thereof)
800,001 and over	\$4,931.63 for the first 800,000 gallons, plus \$9.23 for each additional 1,000 gallons (or fraction thereof)

Exhibit A

Table 7 (continued): Commercial, Irrigation, and Multi-Family Water Rates (Per Resolution 11, Series 2019)

MAY 1, 2019 COMMERCIAL, IRRIGATION, AND MULTIFAMILY WATER RATES - 4" METER	
GALLONS	RATE
Zero - 640,000	\$167.24 (minimum monthly charge), plus \$3.02 for each 1,000 gallons (or fraction thereof)
640,001 - 960,000	\$2,100.04 for the first 640,000 gallons, plus \$7.50 for each additional 1,000 gallons (or fraction thereof)
960,001 - 1,280,000	\$4,500.04 for the first 960,000 gallons, plus \$8.10 for each additional 1,000 gallons (or fraction thereof)
1,280,001 - 1,600,000	\$7,092.04 for the first 1,280,000 gallons, plus \$8.66 for each additional 1,000 gallons (or fraction thereof)
1,600,001 and over	\$9,863.24 for the first 1,600,000 gallons, plus \$9.23 for each additional 1,000 gallons (or fraction thereof)

Exhibit A

Table 7 (continued): Commercial, Irrigation, and Multi-Family Water Rates (Per Resolution 11, Series 2019)

MAY 1, 2019 COMMERCIAL, IRRIGATION, AND MULTIFAMILY WATER RATES - 6" METER	
GALLONS	RATE
Zero - 1,280,000	\$334.50 (minimum monthly charge), plus \$3.02 for each 1,000 gallons (or fraction thereof)
1,280,001 - 1,920,000	\$4,200.10 for the first 1,280,000 gallons, plus \$7.50 for each additional 1,000 gallons (or fraction thereof)
1,920,001 - 2,560,000	\$9,000.10 for the first 1,920,000 gallons, plus \$8.10 for each additional 1,000 gallons (or fraction thereof)
2,560,001 - 3,200,000	\$14,184.10 for the first 2,560,000 gallons, plus \$8.66 for each additional 1,000 gallons (or fraction thereof)
3,200,001 and over	\$19,726.50 for the first 3,200,000 gallons, plus \$9.23 for each additional 1,000 gallons (or fraction thereof)



Exhibit A

Table 8: Building Permits, Inspections, and Review Fees

BUILDING PERMIT FEES	
Total Valuation	Fees
\$0.00 to \$500.00	\$28.00 except as provided in Sec. 15.04.060.14ELMC for residential permits
\$501.00 to \$2,000.00	\$28.00 for the first \$500.00 plus \$4.00 for each additional \$100.00, or fraction thereof, to and including \$2,000.00
\$2,001.00 to \$25,000.00	\$82.00 for the first \$2,000.00 plus \$16.00 for each additional \$1,000.00, or fraction thereof, to and including \$25,000.00
\$25,001.00 to \$50,000.00	\$400.00 for the first \$25,000.00 plus \$12.00 for each additional \$1,000.00, or fraction thereof, to and including \$50,000.00
\$50,001.00 to \$100,000.00	\$700.00 for the first \$50,000.00 plus \$8.00 for each additional \$1,000.00, or fraction thereof, to and including \$100,000.00
\$100,001.00 to \$500,000.00	\$1000.00 for the first \$100,000.00 plus \$6.00 for each additional \$1,000.00, or fraction thereof, to and including \$500,000.00
\$500,001.00 to \$1,000,000.00	\$4,000.00 for the first \$500,000.00 plus \$5.00 for each additional \$1,000.00, or fraction thereof, to and including \$1,000,000.00
\$1,000,001.00 and up	\$6,000.00 for the first \$1,000,000.00 plus \$4.00 for each additional \$1,000.00, or fraction thereof

Exhibit A

City of Louisville Valuation* Data Table	
A	B
1 Group (2018 International Building Code Louisville Colorado)	All
2 A-1 Assembly, theaters, with stage	229.26
3 A-1 Assembly, theaters, without stage	210.11
4 A-2 Assembly, nightclubs	179.28
5 A-2 Assembly, restaurants, bars, banquet halls	178.28
6 A-3 Assembly, churches	212.12
7 A-3 Assembly, general, community halls, libraries, museums	176.94
8 A-4 Assembly, arenas	209.11
9 B Business	182.98
10 E Educational	194.27
11 F-1 Factory and industrial, moderate hazard	109.64
12 F-2 Factory and industrial, low hazard	108.64
13 H-1 High Hazard, explosives	102.63
14 H234 High Hazard	102.63
15 H-5 HPM	182.98
16 I-1 Institutional, supervised environment	183.95
17 I-2 Institutional, hospitals	307.93
18 I-2 Institutional, nursing homes	213.36
19 I-3 Institutional, restrained	208.19
20 I-4 Institutional, day care facilities	183.95
21 M Mercantile	133.57
22 R-1 Residential, hotels	185.63
23 R-2 Residential, multiple family	180.00
24 R-3 Residential, one- and two-family	180.00
25 R-4 Residential, care/assisted living facilities	180.00
26 S-1 Storage, moderate hazard	101.63
27 S-2 Storage, low hazard	100.63
28 U Utility, miscellaneous	78.63
29 Basements Unfinished	45.19
30 Basements Finished	95.5
31 Pole Barns, Carports, Decks, Loafing Sheads, Covers	32.34
32 Private Garages	47.33
*Cost per sqft	

Note: Minimum valuation shall be determined in accordance with the City of Louisville Building Valuation Data Table per square feet. The valuation is calculated based upon standard building valuation data and where the actual total contract construction cost differs, the higher of the two valuation figures shall be used to determine the building permit fee. The City has the right to audit any project to determine if the proper permit fee was paid.

Exhibit A

Table 8 (Continued): Building Permits, Inspections, and Review Fees

OTHER INSPECTIONS AND FEES			
Item	Description	Cost	Note
1.	Inspection outside of normal business hours	\$125.00/ hour	Minimum charge: 2 hours
2.	Re-inspection fees assessed	\$100.00/ hour	
3.	Replacement of lost permit/inspection card	\$50.00	
4.	Administration fee for permit refund	\$50.00	
5.	For use of outside consultants for plan checking and inspections or both	Actual cost ¹	
6.	Temporary Certificate of Occupancy	\$175.00	
7.	Work without a permit – 1 st Offense	2 x Permit Fee	Minimum \$200
8.	Work without a permit – 2 nd Offense within 12 months	4 x Permit Fee	Minimum \$400

¹ Additional Administrative/Overhead Costs Required as Noted in Plan Review and Administration Fees Table.

PLAN REVIEW AND ADMINISTRATION FEES	
Type of Fees	Fees
In-House Plan Review Fee	65 percent of the building permit fee
Administrative/Overhead Costs of Outside Consultant Plan Reviews	20 percent of the building permit fee
Plan Review Fee for Phased Building Permit	100 percent of the building permit fee after issuance
Additional Plan Review Fee After Permit is Issued	\$100.00 per hour (minimum one hour)

ELEVATOR INSPECTION FEES	
Annual Certificates of Inspection	
Type of Fees	Fees
For each elevator	\$260.00
For each escalator or moving walk	\$260.00
For each dumbwaiter	\$260.00

Exhibit A

Table 9: Residential Refuse and Recycling – (Per Contract with Republic)

SECTION 1. For refuse collection and disposal, the following rates, fees and charges shall apply and be charged effective September 1, 2019:

Container Size	Rate
35 Gallon	\$12.75/month
65 Gallon	\$25.50/month
95 Gallon	\$38.25/month
Extra Refuse Bin per 30 Gallon Increment	\$12.75/month
Extra Recycle Bin per 30 Gallon Increment	\$2.50/month
Extra Compost Bin per 30 Gallon Increment	\$2.50/month

Each account subject to refuse collection and disposal service shall be entitled to recycling service and compost service at no additional charge up to 95 gallon container. Upon having 95-gallon container of refuse, recycle, or compost additional charges based upon 30-gallon increment apply.

SECTION 2. For other services provided by the City, the following rates, fees and charges shall apply and be charged effective September 1, 2019:

Service	Fee
32 Gallon Prepaid Sticker	\$3.50/each
End of Month Service Changes	No Charge
Mid Month Service Changes or Prorations	Included
Drive In Service	\$10.00/month*
Cart Roll Out Service	\$10.00/month*
First Large Item Pickup Per Quarter	No Charge**
Cart Change Fee (Up to 3 Free per year)	\$15 each

*Any residents who need this service due to a handicap will receive this service at no charge.

**Excludes Freon-containing appliances and hazardous waste

SECTION 3. A \$2.35 per month administrative fee shall be added to each account subject to Ordinance No. 1545.

SECTION 4. Residences that do not use City service and that are not excluded from City service as set forth in Section 8.64.070 of the Louisville Municipal Code shall be charged a minimum monthly charge of \$15.65, effective September 1, 2019.

SECTION 5. A \$0.70 cent per month hazardous materials management facility fee shall be added to the bill for City water service for each dwelling unit and single family home in accordance with Section 8 of this Resolution for services and expenditures related to the Boulder County Hazardous Materials Management Facility intergovernmental agreement.

SECTION 6. Rates, fees and charges hereunder shall be billed in conjunction with the bill for City water service. For residences that do not have a water billing account, there shall be established an account for billings hereunder.

SECTION 7. Should it be necessary to set fees for special services not covered by the rates and fees established in Sections 1, 2 and 3, the Public Works Director is authorized to set such fees needed to cover the actual cost of providing such services.

Exhibit A

Table 10: Excavation, Right-of-Way, and Easement Work Permit Fees

All Right-of-Way permits shall require a base fee. Additional fees shall be assessed to the permit depending on the services required, the type of work, location of work, and the inspection requirements. Permit fees shall be paid prior to the issuance of the right-of-way permit. Fees shall be doubled if work has begun prior to issuing the permit.

Right-of-Way Base Fees

All Permits Applications	\$75.00/each
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Right-of-Way Inspection Service Fees

Initial Inspection	Included in permit fees
(A) Re-Inspections (2 nd , 3 rd , 4 th , etc.)	\$50.00/hr, 1 hour minimum
(B) Failure to Schedule Inspection	\$100.00/one-time fee
(C) Not ready for scheduled inspection	\$100.00/hr, 1 hour minimum
(D) After-Hours Inspection	\$100.00/ hr, 1 hour minimum

Utility Fees

Underground Dry Utilities (Gas, Communication, Electric)	\$0.30/Linear Foot
Underground Wet Utilities (Water, Sanitary, Storm)	\$1.00/Linear Foot
Water, Sanitary, Storm Main Connection Fee	\$80.00/each
Boring	\$0.30/Linear Foot
Dry Utility Appurtenances	\$5.50/each
Pothole Fee	\$11.00/each

Asphalt & Concrete Fees

Curb & Gutter, Sidewalk, Crossspan/Ramp Drive	\$0.30/Linear Foot, \$0.30/Square Foot
Asphalt Paving / Patching	\$20.00/Square Yard
Asphalt Patching New Asphalt (<5 years old)*	Additional \$10.00/Square Yard
Asphalt Patching Recent Surface Treatment (< 2 years old)*	Additional \$550.00/each cut

Other Applicable Fees

(E) No Permit for the job	2X permit Base Fee
(F) Emergency/ Expedite *	2X permit Base Fee
(G) Special Use*	\$75.00/week

*Refer to General Permit Requirements OR at the discretion of the Engineer

**Resolution 38, Series 2019
Exhibit A**

Code Section Ref.	Fee Description	Current 2019 Fee	Proposed 2020 Fee	Additional Fee Information	Staff Responsibility	Notes
1.24.010	Credit on Fine or for time served	50.00	55.00	Per 24hrs.	Deputy Manager	2 year inflator applied (5% each year)
3.20.402.C	Sales/Use Tax License	25.00	25.00		Finance Director	Inflator will be applied next year - already noticed the fee to businesses.
5.04.070	Business Registration			Replaced by Sales/Use Tax License		
5.08.040	Liquor Application and registration fee			List, see Table 1	Deputy Manager	
5.08.050	Liquor License annual fees (local)			List, see Table 1	Deputy Manager	Checked state fee schedule for maximum amounts City can charge. Local Licensing Authority reviewed & approved proposed fees.
5.08.070	Liquor Special Event Permit fees			List, see Table 1	Deputy Manager	Checked state fee schedule for maximum amounts City can charge. Local Licensing Authority reviewed & approved proposed fees.
5.10.060/5.11.060	Marijuana Establishment - Application fees	3,000.00	3,150.00	plus \$100 for fingerprinting and background check	Deputy Manager	5% inflator applied
5.10.090.C/5.11.100C	Marijuana Establishment - Late Renewal Application Fee	500.00	525.00		Deputy Manager	5% inflator applied
5.10.100/5.11.100/110	Marijuana Establishment - Annual Renewal/Operating License Fee	1,500.00	1,575.00		Deputy Manager	5% inflator applied
5.10.130.D/5.11.140D	Marijuana Establishment - Modification of Premises	1,500.00	1,575.00		Deputy Manager	5% inflator applied
5.10.110.B/5.11.120B	Marijuana Establishment - Change in Location Application Fee	1,500.00	1,575.00		Deputy Manager	5% inflator applied
5.10.130.C/5.11.140C	Marijuana Establishment - Transfer of Ownership Application Fee	3,000.00	3,150.00		Deputy Manager	5% inflator applied
5.12.020	Contractor's Licenses, application and fee			List, see Table 4	Planning Director	5% inflator applied
5.16.040	Massage Parlor, Application Fee	350.00	365.00		Deputy Manager	5% inflator applied
5.16.130	Massage Parlor, Initial fee, and annual renewal	350.00	365.00	\$150 each renewal	Deputy Manager	5% inflator applied
5.18.050	Sexually Oriented Businesses, License fee	200.00	210.00	Annual	Planning Director	5% inflator applied
	Sexually Oriented Businesses, Manager fee	50.00	55.00		Planning Director	2 year inflator applied (5% each year)
	Sexually Oriented Businesses, Application Fee	500.00	525.00		Planning Director	5% inflator applied
5.20.050	Cable TV system - New Application	1,000.00	1,050.00		Deputy Manager	5% inflator applied
	Cable TV system - Transfer or Assignment	500.00	525.00		Deputy Manager	5% inflator applied
6.12.060	Dog License - Spayed or Neutered	10.00	11.00		Deputy Manager	2 year inflator applied (5% each year)
	Dog License - Un-Spayed or Un-Neutered	15.00	16.50		Deputy Manager	2 year inflator applied (5% each year)
6.20.010	Fowl running at large	0.25	0.25	Per fowl	Police Chief	Will continue to track inflation & adjust as needed
8.08.030	Cutting Weeds, recoup administrative costs	150.00	155.00	Up to	Parks Director	5% inflator applied
8.12.200	Arborist License	30.00	33.00	Annual	Parks Director	2 year inflator applied (5% each year)
8.40.050	Pest Control, recoup administrative costs	50.00	53.00	Up to	Police Chief	2 year inflator applied (5% each year)
8.64.090	Residential Refuse and Recycling			List, see Table 9 (updated September 3, 2013, Resolution 39, 2013)	Public Works Director	
9.40.050	Live Music event application fee	20.00	22.00		Deputy Manager	2 year inflator applied (5% each year)
9.60.010	Failure to return processing fee, plus cost of item	5.00	6.00		Library Director	2 year inflator applied (5% each year)
10.12.230	Bicycle License Fee			No charge	Police Chief	
10.18.030	Parking Permit Fee			No parking districts currently exist. Fee established by City Council.	City Manager	
12.12.030	Excavation Permit			List, see Table 10	Public Works Director	
13.08.130	Turn on water after the violation of supplying water to others	40.00	45.00		Public Works Director	2 year inflator applied (5% each year)
13.24.030	Sewer Tap (residential and non-residential)			List, see Table 5	Public Works Director	
13.12.090	Water Rates for Usage, residential and non-residential			List, see Table 7	Public Works Director	
	Inside City Limits				Public Works Director	
	Outside City Limits			Double In-City rates from Table 7	Public Works Director	
13.12.080	Bulk Water Rate				Public Works Director	
	Weekly Permit Fee	50.00	50.00		Public Works Director	
	Deposit for Meter	2,500.00	2,500.00		Public Works Director	
	Per 1,000 gallons	7.67	9.23	\$9.23/1,000 gallons - beginning with the first gallon	Public Works Director	
13.28.030	Residential and Non-residential Sewer rates			List, see Table 6	Public Works Director	
13.32.110	Cost Recovery Fees for Wastewater (Annual):				Public Works Director	
	Significant Contributor	1,000.00	1,000.00		Public Works Director	

Code Section Ref.	Fee Description	Current 2019 Fee	Proposed 2020 Fee	Additional Fee Information	Staff Responsibility	Notes
	Small Significant Contributor	500.00	500.00		Public Works Director	
	Potential Contributor (Annual):				Public Works Director	
	Class A	500.00	500.00		Public Works Director	
	Class B	250.00	250.00		Public Works Director	
	Class C	100.00	100.00		Public Works Director	
	Class D	50.00	50.00		Public Works Director	
13.32.125	Surcharge rate for excess BOD and TSS (49 - 2017)	0.58	0.58	BOD per pound	Public Works Director	
	(Resolution 49, Series 2017)	0.58	0.58	TSS per pound	Public Works Director	
	(Resolution 49, Series 2017)	0.58	0.58	Oil and Grease per pound	Public Works Director	
13.37.040 E 1.	Storm water Utility Service Fee:				Public Works Director	
	Single Family Residential (Resolution 15, Series 2017)	4.40	5.58	Per month - Single and Multi Family	Public Works Director	
	All Others (Resolution 15, Series 2017)	4.40	5.58	SF of impervious area/3,500 times \$4.23	Public Works Director	
14.16.110	Parks, alcohol use	-		Deposit	Parks Director	
Section 15, various	Building Permits, Inspections, and Review Fees			List, see Table 8	Planning Director	
15.20.040	Mobile Home, licenses, permits, deposits and fees	10.00	11.00	Installer's License	Planning Director	2 year inflator applied (5% each year)
		30.00	33.00	Water Deposit	Planning Director	2 year inflator applied (5% each year)
15.24.030	Mobile Home Park operator license	10.00	11.00	Operator License	Planning Director	2 year inflator applied (5% each year)
17.20.025	Parking Improvement Fee - Downtown (Resolution 25, 2017)	18,261.00	20,898.00	Per parking space	Planning Director	5% inflator applied

FEES ESTABLISHED BY CITY MANAGER			
EFFECTIVE JANUARY 1, 2020			
Fee Description	Detail	2020 Fee	Responsible Department/Director
General			
City Maps	Zoning Map (24" x 36")	5.50	Planning Director
City Maps	City Street Map (small/color)	6.60	Public Works Director
City Maps	City Street Map (large)	13.25	Public Works Director
City Maps	Centerline Map (small)	6.60	Public Works Director
City Maps	Centerline Map (large)	21.00	Public Works Director
City Maps	Traffic Count Map (free on website)	6.60	Public Works Director
City Maps	Utility Atlas Plots - per SF	6.60	Public Works Director
City Maps	Custom Maps-Black and White - per SF	4.50	Public Works Director
City Maps	Custom Maps – Color Mylar Printing - per SF	6.60	Public Works Director
City Maps	Electronic Copies		
Copies	8.5" x 11" B/W - per page		Deputy Manager
Copies	11" x 17" B/W - per page	0.25	Deputy Manager
Copies	24" x 36" B/W - per page	3.30	Deputy Manager
Copies	8.5" x 11" Color - per page	0.60	Deputy Manager
Copies	11" x 17" Color - per page	0.85	Deputy Manager
Copies	Certified Copies - per page	1.40	Deputy Manager
Copies of CD/DVDs		5.50	Deputy Manager
Extra Duty Officers/Supervisor/Police Vehicle	Per hour/Vehicle Per Day Cost	67.00/84.00	Police Chief
		Veh. 50.00	
Notary Fee	First 3 seals free, additional seals \$5 per seal	5.00	Deputy Manager
Mylar Printing	Per page	5.00	
Patio Rental	Per 12-Foot Section	1,000.00	Econ Dev Director
Photographs	CC & PL (does not include cost of copies)	15.00	
Police Reports (Non-electronic)	No charge for paper or electronic copies/Dispatch tapes subject to charge from Boulder County Sheriff's Communications Center .	TBD	Police Chief
Police Reports Requiring Research	City's standard hourly research fee. Dispatch tapes subject to charge from Boulder County Sheriff's Communications Center.	-	Police Chief

Fee Description	Detail	2020 Fee	Responsible Department/Director
Postage – Mailing	Charged at standard postal/shipping rate		Deputy Manager
Public Records Research Fee	First 2 hours free, then charged in 15-minute increments - \$20 per hour	22.00	Deputy Manager
Special Event Permit - Standard		440.00	Deputy Manager
Special Event Permit - Small Impact Right-of-Way		55.00	Deputy Manager
Technical Data	City Design Standards	55.00	Public Works Director
Technical Data	Storm Drainage Standards	45.00	Public Works Director
Technical Data	City Standard Details – CD	28.00	Public Works Director
Technical Data	G.I.S. Information – ½ hr. minimum charge of \$25	33.00	Public Works Director
Library			
Borrowing late fees	Art prints, Audio books, Books, CDs, Magazines - per day	0.10	Library Director
Borrowing late fees	DVDs, Book club bags, Special Items (telescopes, dolls, etc.) - per day	0.50	Library Director
Collection Agency	Referral Fee - per action, plus cost of item	10.00	Library Director
Meeting Room	Non-profit, Non-resident - per hour	28.00	Library Director
Meeting Room	Non-profit, Resident Groups - No charge		Library Director
Meeting Room	“For profit” enterprises - per hour	50.00	Library Director
Study Room	No charge	-	Library Director
Historic Photographs			
Reproduction Fee	Per image	16.50	Library Director
Commercial Use Fees:			
Published use, less than 5,000 copies	Per image	16.50	Library Director
Published use, more than 5,000 copies	Per image	36.75	Library Director
Display in a business or at an event	Per image	11.00	Library Director
Advertise or promotion	Per image	105.00	Library Director
Website/Internet	Per year	55.00	Library Director
Film/video production	Per image	105.00	Library Director
Performance or presentation	Per image	55.00	Library Director
Cemetery Fees			
Cemetery Burial Space - Full Size	Resident	1,290.00	Parks/Rec Director
Cemetery Burial Space - Full Size	Non-Resident	3,675.00	Parks/Rec Director

Fee Description	Detail	2020 Fee	Responsible Department/Director
Cemetery Burial Space - Full Size - Blocks 25 to 29	Resident	645.00	Parks/Rec Director
Cemetery Burial Space - Full Size - Blocks 25 to 29	Non-Resident	1,830.00	Parks/Rec Director
Cremation Burial Space	Resident	700.00	Parks/Rec Director
Cremation Burial Space	Non-Resident	2,045.00	Parks/Rec Director
Infant Burial Space	Resident	700.00	Parks/Rec Director
Infant Burial Space	Non-Resident	2,300.00	Parks/Rec Director
Graves - Open & Close	Full Burial	1,330.00	Parks/Rec Director
Graves - Open & Close	Infant Size Burial	650.00	Parks/Rec Director
Graves - Open & Close	Cremation Burial	480.00	Parks/Rec Director
Graves - Disinterment		1,575.00-3,150.00	Parks/Rec Director
Graves - Open & Close	Less Than 48 Hours Notice	575.00	Parks/Rec Director
Graves - Open & Close	Overtime for Saturday Burial	575.00	Parks/Rec Director
Poly Vault	Cremation Burial	155.00	Parks/Rec Director
Concrete Vault	Cremation Burial	340.00	Parks/Rec Director
Facility Rentals (Parks and Rec)			
Birthday party package - Turf Gym	Resident	Basic:\$126; Plus:\$179; Supreme:\$210	Parks/Rec Director
Birthday party package - Turf Gym	Non-resident	Basic:\$158; Plus:\$226; Supreme:\$263	Parks/Rec Director
Birthday party package - Pool	Resident	Basic:\$105; Plus:\$179; Supreme:\$210	
Birthday party package - Pool	Non-resident	Basic:\$131; Plus:\$226; Supreme:\$263	
Parks - All Other Park Shelters	Resident - 1st (4) hours	70.00	Parks/Rec Director
Parks - All Other Park Shelters	Non-Resident - 1st (4) hours	95.00	Parks/Rec Director
Parks - All Other Park Shelters	Resident - Each additional hour	20.00	Parks/Rec Director
Parks - All Other Park Shelters	Non-Resident - Each additional hour	25.00	Parks/Rec Director
Parks - All Other Park Shelters	Large Group Rates (>150) - Additional fee	105.00	Parks/Rec Director
Parks - Community Park Shelter <100 attendees	Resident - 1st (4) hours	115.00	Parks/Rec Director
Parks - Community Park Shelter <100 attendees	Non-Resident - 1st (4) hours	145.00	Parks/Rec Director
Parks - Community Park Shelter <100 attendees	Resident - Each additional hour	25.00	Parks/Rec Director
Parks - Community Park Shelter <100 attendees	Non-Resident - Each additional hour	35.00	Parks/Rec Director
Parks - Community Park Shelter >100 attendees	Resident - 1st (4) hours	210.00	Parks/Rec Director

Fee Description	Detail	2020 Fee	Responsible Department/Director
Parks - Community Park Shelter >100 attendees	Non-Resident - 1st (4) hours	260.00	Parks/Rec Director
Parks - Community Park Shelter >100 attendees	Resident - Each additional hour	50.00	Parks/Rec Director
Parks - Community Park Shelter >100 attendees	Non-Resident Resident - Each additional hour	65.00	Parks/Rec Director
Rooms - Arts Center	Resident non-profit rate per hour	35.00	Deputy Manager
Rooms - Arts Center	Non-resident non-profit rate per hour	45.00	Deputy Manager
Rooms - Arts Center	Resident rate per hour (4 hour minimum)	60.00	Deputy Manager
Rooms - Arts Center	Non-resident rate per hour (4 hour minimum)	70.00	Deputy Manager
Rooms - Grand or Summit	Resident - per hour	50.00	
Rooms - Grand or Summit	Non-Resident - per hour	65.00	
Rooms - Brooks or Crown	Resident - per hour	55.00	Parks/Rec Director
Rooms - Brooks or Crown	Non-resident - per hour	70.00	Parks/Rec Director
Rooms - Garibaldi, Imperial, Paramount	Resident - per hour	40.00	Parks/Rec Director
Rooms - Garibaldi, Imperial, Paramount	Non-resident - per hour	50.00	Parks/Rec Director
Rooms - Heritage Street Parking Area	Use of Heritage Street Parking Area - Additional fee	420.00	Parks/Rec Director
Rooms - Kitchen	Resident - per hour	25.00	Parks/Rec Director
Rooms - Kitchen	Non-resident - per hour	30.00	Parks/Rec Director
Rooms - South Gym	Resident - per hour	55.00	Parks/Rec Director
Rooms - South Gym	Non-resident - per hour	75.00	Parks/Rec Director
MAC Gym	Resident - per hour	85.00	Parks/Rec Director
MAC Gym	Non-Resident per hour	105.00	Parks/Rec Director
Rooms - Steinbaugh Pavillion <100 attendees	1st (4) hours	235.00	Deputy Manager
Rooms - Steinbaugh Pavillion <100 attendees	Each additional hour	55.00	Deputy Manager
Rooms - Steinbaugh Pavillion >100 attendees	1st (4) hours	315.00	Deputy Manager
Rooms - Steinbaugh Pavillion >100 attendees	Each additional hour	83.00	Deputy Manager
Rooms - Steinbaugh Pavillion Non-Profit/Educational	Non-profit or Educational group - per hour (2 hour min)	47.00	Deputy Manager
Sports Complex			
Drag, Line, and/or Change Bases		27.00	Parks/Rec Director
Field Supervisor	Per hour (to be determined by LRC, if needed)	16.00	Parks/Rec Director
Hourly Rate per Field	Resident	31.00	Parks/Rec Director
Hourly Rate per Field	Non-Resident	42.00	Parks/Rec Director
Sat/Sun - Daily Rental (includes all four fields, initial line and drag and lights)	Resident	1,130.00	Parks/Rec Director

Fee Description	Detail	2020 Fee	Responsible Department/Director
Sat/Sun - Daily Rental (includes all four fields, initial line and drag and lights)	Non-Resident	1,400.00	Parks/Rec Director
Usage of Lights	Per hour/Per field	35.00	Parks/Rec Director
Weekday - Daily Rental (includes all four fields, initial line and drag and lights)	Resident	600.00	Parks/Rec Director
Weekday - Daily Rental (includes all four fields, initial line and drag and lights)	Non-Resident	750.00	Parks/Rec Director
Other City Sports Fields			
Any day - Daily Rental	Resident	210.00	Parks/Rec Director
Any day - Daily Rental	Non-Resident	275.00	Parks/Rec Director
Drag, Line, and/or Change Bases per each occurrence	Each occurrence	27.00	Parks/Rec Director
Field Supervisor	Per hour (to be determined by LRC, if needed)	16.00	Parks/Rec Director
Hourly Rental	Resident	26.00	Parks/Rec Director
Hourly Rental	Non-Resident	37.00	Parks/Rec Director
Tennis Courts		5.50	Parks/Rec Director
Other Recreation Fees			
Harper Lake Boat Permit - 1 boat/1 year	Resident	20.00	Parks/Rec Director
Harper Lake Boat Permit - 1 boat/2 years	Resident	35.00	Parks/Rec Director
Harper Lake Boat Permit - 2 boats/1 year	Resident	40.00	Parks/Rec Director
Harper Lake Boat Permit - 2 boats/2 years	Resident	70.00	Parks/Rec Director
Harper Lake Boat Permit - 1 boat/1 year	Non-Resident	40.00	Parks/Rec Director
Harper Lake Boat Permit - 1 boat/2 years	Non-Resident	70.00	Parks/Rec Director
Harper Lake Boat Permit - 2 boats/1 year	Non-Resident	80.00	Parks/Rec Director
Harper Lake Boat Permit - 2 boats/2 years	Non-Resident	145.00	Parks/Rec Director
Recreation Ctr Sales -- Misc items	Cost plus 40%		Parks/Rec Director
Recreational Vehicle Sanitary Waste Disposal	Resident - per calendar year/per RV	20.00	Public Works Director
Recreational Vehicle Sanitary Waste Disposal	Non-resident - per calendar year/per RV	30.00	Public Works Director
Tennis Courts	Hourly rental per court	5.00	Parks/Rec Director
Recreation Center Admission			
10 Visit Pass	Resident Youth (3-17)	37.50	Parks/Rec Director
10 Visit Pass	Non-Resident Youth (3-17)	75.00	Parks/Rec Director

Fee Description	Detail	2020 Fee	Responsible Department/Director
20 Visit Pass	Resident Youth (3-17)	75.00	Parks/Rec Director
20 Visit Pass	Non-Resident Youth (3-17)	150.00	Parks/Rec Director
10 Visit Pass	Resident Adult (18-59)	57.50	Parks/Rec Director
10 Visit Pass	Non-Resident Adult (18-59)	97.50	Parks/Rec Director
20 Visit Pass	Resident Adult (18-59)	115.00	Parks/Rec Director
20 Visit Pass	Non-Resident Adult (18-59)	195.00	Parks/Rec Director
10 Visit Pass	Resident Senior 60+	37.50	Parks/Rec Director
10 Visit Pass	Non-Resident Senior 60+	75.00	Parks/Rec Director
20 Visit Pass	Resident Senior 60+	75.00	Parks/Rec Director
20 Visit Pass	Non-Resident Senior 60+	150.00	Parks/Rec Director
Daily Admission	Resident Youth (3-17)	5.25	Parks/Rec Director
Daily Admission	Non-Resident Youth (3-17)	8.50	Parks/Rec Director
Daily Admission	Resident Adult (18-59)	7.25	Parks/Rec Director
Daily Admission	Non-Resident Adult (18-59)	10.75	Parks/Rec Director
Daily Admission	Resident Senior 60+	5.25	Parks/Rec Director
Daily Admission	Non-Resident Senior 60+	8.50	Parks/Rec Director
Daily Admission	Resident Group Rate (10+) Youth	3.75	Parks/Rec Director
Daily Admission	Non-Resident Group Rate (10+) Youth	7.50	Parks/Rec Director
Daily Admission	Resident Group Rate (10+) Adults	5.75	Parks/Rec Director
Daily Admission	Non-Resident Group Rate (10+) Adults	9.75	Parks/Rec Director
Monthly Pass	Youth (3-17) Resident	25.00	Parks/Rec Director
Monthly Pass	Youth (3-17) Non-Resident	36.00	Parks/Rec Director
Monthly Pass	Adult (18-59) Resident	42.00	Parks/Rec Director
Monthly Pass	Adult (18-59) Non-Resident	60.00	Parks/Rec Director
Monthly Pass	Senior 60+ Resident	25.00	Parks/Rec Director
Monthly Pass	Senior 60+ Non-Resident	36.00	Parks/Rec Director
Monthly Pass	Couple - Resident	63.00	Parks/Rec Director
Monthly Pass	Couple - Non-Resident	80.00	Parks/Rec Director
Monthly Pass	Family - Resident	78.00	Parks/Rec Director
Monthly Pass	Family - Non-Resident	105.00	Parks/Rec Director
Monthly Pass	Business - Non - Resident Adult	\$48	Parks/Rec Director
Monthly Pass	Business - Non - Resident Senior	\$31	Parks/Rec Director
Annual Pass	Business - Non - Resident Adult	\$504	Parks/Rec Director
Annual Pass	Business - Non - Resident Senior	\$302	Parks/Rec Director
Annual Pass	Youth (3-17) Resident	\$239	Parks/Rec Director
Annual Pass	Youth (3-17) Non-Resident	\$370	Parks/Rec Director

Fee Description	Detail	2020 Fee	Responsible Department/Director
Annual Pass	Adult (18-59) Resident	\$441	Parks/Rec Director
Annual Pass	Adult (18-59) Non-Resident	\$640	Parks/Rec Director
Annual Pass	Senior (60+) Resident	\$239	Parks/Rec Director
Annual Pass	Senior (60+) Non - Resident	\$370	Parks/Rec Director
Annual Pass	Couple - Resident	\$693	Parks/Rec Director
Annual Pass	Couple - Non-Resident	\$890	Parks/Rec Director
Annual Pass	Family - Resident	\$743	Parks/Rec Director
Annual Pass	Family - Non-Resident	\$950	Parks/Rec Director
Towel Rental		1.00	Parks/Rec Director
LRC Childcare			
Annual Kids Corner Pass - First child	Resident	262.00	Parks/Rec Director
	Non-resident	327.00	
Annual Kids Corner Pass - Each additional child	Resident	52.00	Parks/Rec Director
	Non-resident	65.00	
Drop-in 1 hour	Resident	3.25	Parks/Rec Director
	Non-resident	4.50	
Drop-in - Additional child same family	Resident	2.75	Parks/Rec Director
	Non-resident	3.50	
Punch Card - 10 hours/40 punches	Resident	21.00	Parks/Rec Director
	Non-resident	26.00	
Other LRC Programs			
American Red Cross CPR & AED	Resident	53.00	Parks/Rec Director
American Red Cross CPR & AED	Non-Resident	66.00	Parks/Rec Director
Aquatics Group Lessons	Resident	50.00	Parks/Rec Director
Aquatics Group Lessons	Non-Resident	63.00	Parks/Rec Director
Aquatics Private Lessons	Resident	30.00	Parks/Rec Director
Aquatics Private Lessons	Non-Resident	38.00	Parks/Rec Director
Aquatics Mini-Private Lessons	Resident	15.00	
Aquatics Mini-Private Lessons	Non-Resident	19.00	
Pool Rental (after hours) - Lap Pool	Resident	\$158/hr	
Pool Rental (after hours) - Lap Pool	Non-Resident	\$198/hr	
Pool Rental (after hours) - Progam Pool	Resident	\$158/hr	
Pool Rental (after hours) - Progam Pool	Non-Resident	\$198/hr	
Pool Rental (after hours) - Splash/Lazy River	Resident	\$158/hr	

Fee Description	Detail	2020 Fee	Responsible Department/Director
Pool Rental (after hours) - Splash/Lazy River	Non-Resident	\$198/hr	
Pool Rental (after hours) - Hot Tub	Resident	\$26/hr	
Pool Rental (after hours) - Hot Tub	Non-Resident	\$33/hr	
Pool Rental Extra Guests - 41-80 guests		\$53/hr	
Pool Rental Extra Guests - 81-120 guests		\$105/hr	
Pool Rental Extra Guests - 121-160 guests		\$158/hr	
Pool Rental Extra Guests - 161-200 guests		\$210/hr	
Dance		84.00-120.00	Parks/Rec Director
Fitness Wellness Classes		21.00-240.00	Parks/Rec Director
Lifeguard training	Resident	38.00	Parks/Rec Director
Lifeguard training	Non-Resident	48.00	Parks/Rec Director
Nite at the Rec	Resident	12.00	Parks/Rec Director
Nite at the Rec	Non-Resident	15.00	Parks/Rec Director
Nite at the REC - Purchase of (4) nights	Resident	36.00	Parks/Rec Director
Nite at the REC - Purchase of (4) nights	Non-Resident	45.00	Parks/Rec Director
Senior Activities		free -100.00	Parks/Rec Director
Sports/Adult		28.00-450.00	Parks/Rec Director
Sports/Youth		30.00-85.00	Parks/Rec Director
Yoga/ Martial Arts		46.00-75.00	Parks/Rec Director
Youth Activities		10.00-282.00	Parks/Rec Director
Coal Creek Golf Course			
Standard Green Fees (may vary for promotions, etc. with approval of Parks and Rec. Dir.)			
	18 hole weekday	35.00-47.00	Parks/Rec Director
	18 hole weekend	37.00-56.00	Parks/Rec Director
	9 hole weekday	21.00-27.00	Parks/Rec Director
	9 hole weekend	23.00-27.00	Parks/Rec Director
	Twilight weekday	23.00 - 30.00 32.00	Parks/Rec Director
	Twilight weekend	25.00 - 30.00 35.00	Parks/Rec Director

Fee Description	Detail	2020 Fee	Responsible Department/Director
	Annual Membership/Unlimited Golf	1,600.00 - 2,200.00	Parks/Rec Director
Water Tap Fees			
(larger than 4" tap, fee by agreement with City Council)	By Demand in gpm/tap size:		
	0-22 ¾" tap	53,500.00	Public Works Director
	23-45 1" tap	95,300.00	Public Works Director
	46-80 1½ " tap	214,000.00	Public Works Director
	81-140 2" tap	380,500.00	Public Works Director
	141-280 3" tap	856,000.00	Public Works Director
	281-500 4" tap	1,521,700.00	Public Works Director
Storm Water Permit Fee			
	1 - 5 Acres	300.00	Public Works Director
	6 - 25 Acres	625.00	Public Works Director
	26 - 50 Acres	950.00	Public Works Director
	51 - 100 Acres	1,250.00	Public Works Director
	Above 101 Acres	1,500.00	Public Works Director
Development Review Applications	All Fees set forth in Section 17		
Annexation & Zoning	Annexation & initial zoning	7,000.00	Planning Director
Annexation & Zoning	Rezoning	4,190.00	Planning Director
Wireless Communication Facility	Public review	2,870.00	Planning Director
Wireless Communication Facility	Administrative review	550.00	Planning Director
Other Land Use Fees	Municipal Code Amendment	525.00	Planning Director
Other Land Use Fees	Easement or right-of-way vacation	1,930.00	Planning Director
Other Land Use Fees	Floodplain development permit	490.00	Planning Director
Other Land Use Fees	Major Demo Permit Review	475.00	Planning Director
Other Land Use Fees	Minor Demo Permit Review	60.00	Planning Director
Other Land Use Fees	Variance - Board of Adjustment	780.00	Planning Director
Other Land Use Fees	Variance – Administrative	200.00	Planning Director
Other Land Use Fees	Minor Impact Variance	90.00	Planning Director
Other Land Use Fees	Oil & gas production permit	3,490.00	Planning Director
Other Land Use Fees	1041 Permit	1,390.00	Planning Director
Other Land Use Fees	Vested Right Request	1,660.00	Planning Director
Other Land Use Fees	LP Gas Sales and Exchange	600.00	Planning Director

Fee Description	Detail	2020 Fee	Responsible Department/Director
Other Land Use Fees	Appeal of Zoning Administrator Decision	765.00	Planning Director
Other Land Use Fees	Building Code Board of Appeals Appeal Application	765.00	Planning Director
Other Land Use Fees	Nonconforming Use Certificate Request	1,920.00	Planning Director
Planned Community Zone District	PCZD (\leq 100 acres)	5,390.00	Planning Director
Planned Community Zone District	PCZD ($>$ 100 acres)	6,070.00	Planning Director
Planned Community Zone District	PCZD amendment	1,920.00	Planning Director
Planned Unit Development	PUD – preliminary review ($<$ 7 acres)	2,870.00	Planning Director
Planned Unit Development	PUD – final review (\leq 7 acres)	2,870.00	Planning Director
Planned Unit Development	PUD – preliminary review ($>$ 7 acres)	3,490.00	Planning Director
Planned Unit Development	PUD – final review ($>$ 7 acres)	2,870.00	Planning Director
Planned Unit Development	PUD – amendment	1,920.00	Planning Director
Planned Unit Development	Administrative PUD amendment	555.00	Planning Director
Special Review Use	Special Review Use (SRU)	1,270.00	Planning Director
Special Review Use	SRU amendment	1,050.00	Planning Director
Special Review Use	SRU (use only, no development)	525.00	Planning Director
Special Review Use	SRU administrative	360.00	Planning Director
Special Review Use	Day Care (Neighborhood 6 – 12 children)	370.00	Planning Director
Subdivision	Preliminary plat (\leq 15 acres)	1,400.00	Planning Director
Subdivision	Preliminary plat ($>$ 15 acres)	3,570.00	Planning Director
Subdivision	Final plat (all) & Final agreement(s) (with final PUD)	1,110.00	Planning Director
Subdivision	Final plat (not accompanied by a PUD)	1,980.00	Planning Director
Subdivision	Minor subdivision	1,980.00	Planning Director
Temporary Uses	Temporary use permit (administrative)	200.00	Planning Director
Temporary Uses	Temporary use permit (public review)	350.00	Planning Director
Temporary Uses	Temporary sign permit	100.00	Planning Director
Zoning Code Amendment		580.00	Planning Director
Zoning Map Amendment		590.00	Planning Director
Impact Fees			
	See Table 1 of Attachment 1		Planning Director
Revocable License Agreements			
	Staff/Attorney Fees	TBD	City Manager
	Fees may be charged to recoup city costs, including city attorney fees		City Manager

Fee Description	Detail	2020 Fee	Responsible Department/Director
Public Works			
Temporary Easements	Construction, Slope, etc.	10.00	Public Works Director
IPP Sampling Fees	Cost for sampling Industrial Users - Market Value	TBD	Public Works Director
Utility Fees			
Re-use Water Fee		75% of Residential Rate	Public Works Director
Account Delinquent Fee	Charged when bill is 30 days past due	\$5.00 + 1%/Month	Finance Director
Final Bill/Transfer Fee	Covers cost of final reading, final billing and transfer account. Charged to seller when property is sold	25.00	Finance Director
Reconnect Fee for Utilities	1 st occurrence		Finance Director
Reconnect Fee for Utilities	Normal business hours	25.00	Finance Director
Reconnect Fee for Utilities	After hours	50.00	Finance Director
Reconnect Fee for Utilities	2 nd occurrence		Finance Director
Reconnect Fee for Utilities	Normal business hours	50.00	Finance Director
Reconnect Fee for Utilities	After hours	75.00	Finance Director
Reconnect Fee for Utilities	Subsequent occurrences		Finance Director
Reconnect Fee for Utilities	Normal business hours	75.00	Finance Director
Reconnect Fee for Utilities	After hours	105.00	Finance Director
Red Tag Fee (Delinquency Notice)	Fee for hanging notice at time account is 30 days past due	15.00	Finance Director
Service Fee for rejected payment		25.00	Finance Director
Voluntary Disconnect & Reconnect Fee	Per disconnect and per reconnect	25.00	Finance Director
Approved:			
Heather Balsler, City Manager			

City Manager Fees – Attachment 1

Table 1: Impact Fees

	Parks and Trails	Parks and Trails Fee w/ 3.4% Inflator	Transportation	Transportation Fee w/ 3.4% Inflator
<i>Single-Family</i>				
1,100 sq. ft. of finished floor area or less	\$2,890.00	\$2,988.26	\$1,602.00	\$1,656.47
1,101 to 1,400	\$3,885.00	\$4,017.09	\$2,030.00	\$2,099.02
1,401 to 1,700	\$4,711.00	\$4,871.17	\$2,372.00	\$2,452.65
1,701 to 2,000	\$5,386.00	\$5,569.12	\$2,658.00	\$2,748.37
2,001 or more	\$6,325.00	\$6,540.05	\$3,052.00	\$3,155.77
<i>Multi-Family</i>				
750 or less	\$1,933.00	\$1,998.72	\$1,095.00	\$1,132.23
751 to 900	\$2,834.00	\$2,930.36	\$1,589.00	\$1,643.03
901 to 1,050	\$3,603.00	\$3,725.50	\$2,006.00	\$2,074.20
1,051 or more	\$4,673.00	\$4,831.88	\$2,586.00	\$2,673.92
<i>Nonresidential - per square foot</i>				
Commercial	\$0.00	\$0.00	\$3.09	\$3.20
Office	\$0.00	\$0.00	\$1.34	\$1.39
Institutional	\$0.00	\$0.00	\$1.87	\$1.93
Industrial	\$0.00	\$0.00	\$0.46	\$0.48

FEES ESTABLISHED BY CITY MANAGER

EFFECTIVE JANUARY 1, 2020

Fee Description	Detail	2019 Fee	Proposed 2020 Fee	Responsible Party	Notes
General					
City Maps	Zoning Map (24" x 36")	5.00	5.50	Planning Director	5% inflator applied
City Maps	City Street Map (small/color)	6.00	6.60	Public Works Director	5% inflator applied
City Maps	City Street Map (large)	12.00	13.25	Public Works Director	5% inflator applied
City Maps	Centerline Map (small)	6.00	6.60	Public Works Director	5% inflator applied
City Maps	Centerline Map (large)	19.00	21.00	Public Works Director	5% inflator applied
City Maps	Traffic Count Map (free on website)	6.00	6.60	Public Works Director	5% inflator applied
City Maps	Utility Atlas Plots - per SF	6.00	6.60	Public Works Director	5% inflator applied
City Maps	Custom Maps-Black and White - per SF	4.00	4.50	Public Works Director	5% inflator applied
City Maps	Custom Maps – Color Mylar Printing - per SF	6.00	6.60	Public Works Director	5% inflator applied
City Maps	Electronic Copies	5.00			
Copies	8.5" x 11" B/W - per page	0.10		Deputy Manager	5% inflator applied
Copies	11" x 17" B/W - per page	0.20	0.25	Deputy Manager	5% inflator applied
Copies	24" x 36" B/W - per page	3.00	3.30	Deputy Manager	5% inflator applied
Copies	8.5" x 11" Color - per page	0.50	0.60	Deputy Manager	5% inflator applied
Copies	11" x 17" Color - per page	0.75	0.85	Deputy Manager	5% inflator applied
Copies	Certified Copies - per page	1.25	1.40	Deputy Manager	5% inflator applied
Copies of CD/DVDs		5.00	5.50	Deputy Manager	5% inflator applied
Extra Duty Officers/Supervisor/Police Vehicle	Per hour/Vehicle Per Day Cost	63.00/80.00	67.00/84.00 Veh. 50.00	Police Chief	
Notary Fee	First 3 seals free, additional seals \$5 per seal	1.25	5.00	Deputy Manager	Additional staff time needed to process payment than to complete work
Mylar Printing	Per page	5.00	5.00		
Patio Rental	Per 12-Foot Section	1,000.00	1,000.00	Econ Dev Director	
Photographs	CC & PL (does not include cost of copies)	15.00	15.00		
Police Reports (Non-electronic)	No charge for paper or electronic copies/Dispatch tapes subject to charge from Boulder County Sheriff's Communications Center .	TBD	TBD	Police Chief	
Police Reports Requiring Research	City's standard hourly research fee. Dispatch tapes subject to charge from Boulder County Sheriff's Communications Center.		-	Police Chief	
Postage – Mailing	Charged at standard postal/shipping rate			Deputy Manager	
Public Records Research Fee	First 2 hours free, then charged in 15-minute increments - \$20 per hour	20.00	22.00	Deputy Manager	5% inflator applied
Special Event Permit - Standard		400.00	440.00	Deputy Manager	5% inflator applied
Special Event Permit - Small Impact Right-of-Way		50.00	55.00	Deputy Manager	5% inflator applied
Technical Data	City Design Standards	50.00	55.00	Public Works Director	5% inflator applied
Technical Data	Storm Drainage Standards	40.00	45.00	Public Works Director	5% inflator applied
Technical Data	City Standard Details – CD	25.00	28.00	Public Works Director	5% inflator applied
Technical Data	G.I.S. Information – ½ hr. minimum charge of \$25	30.00	33.00	Public Works Director	5% inflator applied
Library					
Borrowing late fees	Art prints, Audio books, Books, CDs, Magazines - per day	0.10	0.10	Library Director	5% inflator not applied. Staff will continue to reevaluate fee in future.
Borrowing late fees	DVDs, Book club bags, Special Items (telescopes, dolls, etc.) - per day	0.50	0.50	Library Director	5% inflator not applied. Staff will continue to reevaluate fee in future.
Collection Agency	Referral Fee - per action, plus cost of item	10.00	10.00	Library Director	
Meeting Room	Non-profit, Non-resident - per hour	25.00	28.00	Library Director	5% inflator applied
Meeting Room	Non-profit, Resident Groups - No charge	-		Library Director	
Meeting Room	"For profit" enterprises - per hour	45.00	50.00	Library Director	5% inflator applied
Study Room	No charge	-	-	Library Director	

Fee Description	Detail	2019 Fee	Proposed 2020 Fee	Responsible Party	Notes
Historic Photographs					
Reproduction Fee	Per image	15.00	16.50	Library Director	5% inflator applied
Commercial Use Fees:					
Published use, less than 5,000 copies	Per image	15.00	16.50	Library Director	5% inflator applied
Published use, more than 5,000 copies	Per image	35.00	36.75	Library Director	5% inflator applied
Display in a business or at an event	Per image	10.00	11.00	Library Director	5% inflator applied
Advertise or promotion	Per image	100.00	105.00	Library Director	5% inflator applied
Websit/Internet	Per year	50.00	55.00	Library Director	5% inflator applied
Film/video production	Per image	100.00	105.00	Library Director	5% inflator applied
Performance or presentation	Per image	50.00	55.00	Library Director	5% inflator applied
Cemetery Fees					
Cemetery Burial Space - Full Size	Resident	1,230.00	1,290.00	Parks/Rec Director	5% inflator applied
Cemetery Burial Space - Full Size	Non-Resident	3,500.00	3,675.00	Parks/Rec Director	5% inflator applied
Cemetery Burial Space - Full Size - Blocks 25 to 29	Resident	615.00	645.00	Parks/Rec Director	5% inflator applied
Cemetery Burial Space - Full Size - Blocks 25 to 29	Non-Resident	1,750.00	1,830.00	Parks/Rec Director	5% inflator applied
Cremation Burial Space	Resident	675.00	700.00	Parks/Rec Director	5% inflator applied
Cremation Burial Space	Non-Resident	1,950.00	2,045.00	Parks/Rec Director	5% inflator applied
Infant Burial Space	Resident	675.00	700.00	Parks/Rec Director	5% inflator applied
Infant Burial Space	Non-Resident	2,200.00	2,300.00	Parks/Rec Director	5% inflator applied
Graves - Open & Close	Full Burial	1,275.00	1,330.00	Parks/Rec Director	5% inflator applied
Graves - Open & Close	Infant Size Burial	625.00	650.00	Parks/Rec Director	5% inflator applied
Graves - Open & Close	Cremation Burial	460.00	480.00	Parks/Rec Director	5% inflator applied
Graves - Disinterment		1,500.00-3,000.00	1,575.00-3,150.00	Parks/Rec Director	5% inflator applied
Graves - Open & Close	Less Than 48 Hours Notice	550.00	575.00	Parks/Rec Director	5% inflator applied
Graves - Open & Close	Overtime for Saturday Burial	550.00	575.00	Parks/Rec Director	5% inflator applied
Poly Vault	Cremation Burial	150.00	155.00	Parks/Rec Director	5% inflator applied
Concrete Vault	Cremation Burial	325.00	340.00	Parks/Rec Director	5% inflator applied
Facility Rentals (Parks and Rec)					
Birthday party package - Turf Gym	Resident	70.00	Basic:\$126; Plus:\$179; Supreme:\$210	Parks/Rec Director	Added new rooms/rental options due to new facility
Birthday party package - Turf Gym	Non-resident	90.00	Basic:\$158; Plus:\$226; Supreme:\$263	Parks/Rec Director	
Birthday party package - Pool	Resident		Basic:\$105; Plus:\$179; Supreme:\$210		
Birthday party package - Pool	Non-resident		Basic:\$131; Plus:\$226; Supreme:\$263		
Parks - All Other Park Shelters	Resident - 1st (4) hours	70.00	70.00	Parks/Rec Director	Will continue to track inflation & adjust as needed
Parks - All Other Park Shelters	Non-Resident - 1st (4) hours	90.00	95.00	Parks/Rec Director	5% inflator applied
Parks - All Other Park Shelters	Resident - Each additional hour	20.00	20.00	Parks/Rec Director	Will continue to track inflation & adjust as needed
Parks - All Other Park Shelters	Non-Resident - Each additional hour	25.00	25.00	Parks/Rec Director	Will continue to track inflation & adjust as needed
Parks - All Other Park Shelters	Large Group Rates (>150) - Additional fee	100.00	105.00	Parks/Rec Director	5% inflator applied
Parks - Community Park Shelter <100 attendees	Resident - 1st (4) hours	110.00	115.00	Parks/Rec Director	5% inflator applied
Parks - Community Park Shelter <100 attendees	Non-Resident - 1st (4) hours	140.00	145.00	Parks/Rec Director	5% inflator applied
Parks - Community Park Shelter <100 attendees	Resident - Each additional hour	25.00	25.00	Parks/Rec Director	Will continue to track inflation & adjust as needed
Parks - Community Park Shelter <100 attendees	Non-Resident - Each additional hour	35.00	35.00	Parks/Rec Director	Will continue to track inflation & adjust as needed
Parks - Community Park Shelter >100 attendees	Resident - 1st (4) hours	200.00	210.00	Parks/Rec Director	5% inflator applied
Parks - Community Park Shelter >100 attendees	Non-Resident - 1st (4) hours	250.00	260.00	Parks/Rec Director	5% inflator applied
Parks - Community Park Shelter >100 attendees	Resident - Each additional hour	50.00	50.00	Parks/Rec Director	Will continue to track inflation & adjust as needed
Parks - Community Park Shelter >100 attendees	Non-Resident Resident - Each additional hour	65.00	65.00	Parks/Rec Director	Will continue to track inflation & adjust as needed
Rooms - Arts Center	Resident non-profit rate per hour	35.00	35.00	Deputy Manager	

Fee Description	Detail	2019 Fee	Proposed 2020 Fee	Responsible Party	Notes
Rooms - Arts Center	Non-resident non-profit rate per hour	45.00	45.00	Deputy Manager	
Rooms - Arts Center	Resident rate per hour (4 hour minimum)	60.00	60.00	Deputy Manager	
Rooms - Arts Center	Non-resident rate per hour (4 hour minimum)	70.00	70.00	Deputy Manager	
Rooms - Grand or Summit	Resident - per hour	45.00	50.00		New rooms and fee due to new facility/rooms
Rooms - Grand or Summit	Non-Resident - per hour	60.00	65.00		New rooms and fee due to new facility/rooms
Rooms - Brooks or Crown	Resident - per hour	50.00	55.00	Parks/Rec Director	Adjusted per P&R Director
Rooms - Brooks or Crown	Non-resident - per hour	65.00	70.00	Parks/Rec Director	Adjusted per P&R Director
Rooms - Garibaldi, Imperial, Paramount	Resident - per hour	35.00	40.00	Parks/Rec Director	Adjusted per P&R Director
Rooms - Garibaldi, Imperial, Paramount	Non-resident - per hour	45.00	50.00	Parks/Rec Director	Adjusted per P&R Director
Rooms - Heritage Street Parking Area	Use of Heritage Street Parking Area - Additional fee	400.00	420.00	Parks/Rec Director	5% inflator applied
Rooms - Kitchen	Resident - per hour	25.00	25.00	Parks/Rec Director	
Rooms - Kitchen	Non-resident - per hour	30.00	30.00	Parks/Rec Director	
Rooms - South Gym	Resident - per hour	55.00	55.00	Parks/Rec Director	
Rooms - South Gym	Non-resident - per hour	75.00	75.00	Parks/Rec Director	
MAC Gym	Resident - per hour	80.00	85.00	Parks/Rec Director	New rooms and fee due to new facility/rooms
MAC Gym	Non-Resident per hour	100.00	105.00	Parks/Rec Director	New rooms and fee due to new facility/rooms
Rooms - Steinbaugh Pavillion <100 attendees	1st (4) hours	225.00	235.00	Deputy Manager	5% inflator applied
Rooms - Steinbaugh Pavillion <100 attendees	Each additional hour	50.00	55.00	Deputy Manager	5% inflator applied
Rooms - Steinbaugh Pavillion >100 attendees	1st (4) hours	300.00	315.00	Deputy Manager	5% inflator applied
Rooms - Steinbaugh Pavillion >100 attendees	Each additional hour	75.00	83.00	Deputy Manager	5% inflator applied
Rooms - Steinbaugh Pavillion Non-Profit/Educational	Non-profit or Educational group - per hour (2 hour min)	45.00	47.00	Deputy Manager	5% inflator applied
Sports Complex					
Drag, Line, and/or Change Bases		25.00	27.00	Parks/Rec Director	Adjusted per P&R Director, RAB and Finance Committee
Field Supervisor	Per hour (to be determined by LRC, if needed)	15.00	16.00	Parks/Rec Director	Adjusted per P&R Director, RAB and Finance Committee
Hourly Rate per Field	Resident	30.00	31.00	Parks/Rec Director	Adjusted per P&R Director, RAB and Finance Committee
Hourly Rate per Field	Non-Resident	40.00	42.00	Parks/Rec Director	Adjusted per P&R Director, RAB and Finance Committee
Sat/Sun - Daily Rental (includes all four fields, initial line and drag and lights)	Resident	1,080.00	1,130.00	Parks/Rec Director	5% inflator applied
Sat/Sun - Daily Rental (includes all four fields, initial line and drag and lights)	Non-Resident	1,350.00	1,400.00	Parks/Rec Director	5% inflator applied
Usage of Lights	Per hour/Per field	30.00	35.00	Parks/Rec Director	5% inflator applied
Weekday - Daily Rental (includes all four fields, initial line and drag and lights)	Resident	575.00	600.00	Parks/Rec Director	5% inflator applied
Weekday - Daily Rental (includes all four fields, initial line and drag and lights)	Non-Resident	720.00	750.00	Parks/Rec Director	5% inflator applied
Other City Sports Fields					
Any day - Daily Rental	Resident	200.00	210.00	Parks/Rec Director	5% inflator applied
Any day - Daily Rental	Non-Resident	275.00	275.00	Parks/Rec Director	5% inflator applied
Drag, Line, and/or Change Bases per each occurrence	Each occurrence	25.00	27.00	Parks/Rec Director	Adjusted per P&R Director, RAB and Finance Committee
Field Supervisor	Per hour (to be determined by LRC, if needed)	15.00	16.00	Parks/Rec Director	Adjusted per P&R Director, RAB and Finance Committee
Hourly Rental	Resident	25.00	26.00	Parks/Rec Director	Adjusted per P&R Director, RAB and Finance Committee
Hourly Rental	Non-Resident	35.00	37.00	Parks/Rec Director	Adjusted per P&R Director, RAB and Finance Committee
Tennis Courts		5.00	5.50	Parks/Rec Director	Adjusted per P&R Director, RAB and Finance Committee
Other Recreation Fees					
Harper Lake Boat Permit - 1 boat/1 year	Resident	20.00	20.00	Parks/Rec Director	
Harper Lake Boat Permit - 1 boat/2 years	Resident	35.00	35.00	Parks/Rec Director	
Harper Lake Boat Permit - 2 boats/1 year	Resident	40.00	40.00	Parks/Rec Director	
Harper Lake Boat Permit - 2 boats/2 years	Resident	70.00	70.00	Parks/Rec Director	
Harper Lake Boat Permit - 1 boat/1 year	Non-Resident	40.00	40.00	Parks/Rec Director	
Harper Lake Boat Permit - 1 boat/2 years	Non-Resident	70.00	70.00	Parks/Rec Director	

Fee Description	Detail	2019 Fee	Proposed 2020 Fee	Responsible Party	Notes
Harper Lake Boat Permit - 2 boats/1 year	Non-Resident	80.00	80.00	Parks/Rec Director	
Harper Lake Boat Permit - 2 boats/2 years	Non-Resident	140.00	145.00	Parks/Rec Director	5% inflator applied
Recreation Ctr Sales -- Misc items	Cost plus 40%			Parks/Rec Director	
Recreational Vehicle Sanitary Waste Disposal	Resident - per calendar year/per RV	20.00	20.00	Public Works Director	Will continue to track inflation & adjust as needed
Recreational Vehicle Sanitary Waste Disposal	Non-resident - per calendar year/per RV	30.00	30.00	Public Works Director	Will continue to track inflation & adjust as needed
Tennis Courts	Hourly rental per court	5.00	5.00	Parks/Rec Director	Will continue to track inflation & adjust as needed
Recreation Center Admission					Adjusted per P&R Director, RAB and Finance Committee
10 Visit Pass	Resident Youth (3-17)	35.00	37.50	Parks/Rec Director	
10 Visit Pass	Non-Resident Youth (3-17)	65.00	75.00	Parks/Rec Director	
20 Visit Pass	Resident Youth (3-17)	70.00	75.00	Parks/Rec Director	
20 Visit Pass	Non-Resident Youth (3-17)	130.00	150.00	Parks/Rec Director	
10 Visit Pass	Resident Adult (18-59)	55.00	57.50	Parks/Rec Director	
10 Visit Pass	Non-Resident Adult (18-59)	85.00	97.50	Parks/Rec Director	
20 Visit Pass	Resident Adult (18-59)	110.00	115.00	Parks/Rec Director	
20 Visit Pass	Non-Resident Adult (18-59)	170.00	195.00	Parks/Rec Director	
10 Visit Pass	Resident Senior 60+	35.00	37.50	Parks/Rec Director	
10 Visit Pass	Non-Resident Senior 60+	65.00	75.00	Parks/Rec Director	
20 Visit Pass	Resident Senior 60+	70.00	75.00	Parks/Rec Director	
20 Visit Pass	Non-Resident Senior 60+	130.00	150.00	Parks/Rec Director	
Daily Admission	Resident Youth (3-17)	5.00	5.25	Parks/Rec Director	
Daily Admission	Non-Resident Youth (3-17)	8.00	8.50	Parks/Rec Director	
Daily Admission	Resident Adult (18-59)	7.00	7.25	Parks/Rec Director	
Daily Admission	Non-Resident Adult (18-59)	10.00	10.75	Parks/Rec Director	
Daily Admission	Resident Senior 60+	5.00	5.25	Parks/Rec Director	
Daily Admission	Non-Resident Senior 60+	8.00	8.50	Parks/Rec Director	
Daily Admission	Resident Group Rate (10+) Youth	3.50	3.75	Parks/Rec Director	
Daily Admission	Non-Resident Group Rate (10+) Youth	6.50	7.50	Parks/Rec Director	
Daily Admission	Resident Group Rate (10+) Adults	6.50	5.75	Parks/Rec Director	
Daily Admission	Non-Resident Group Rate (10+) Adults	8.50	9.75	Parks/Rec Director	
Monthly Pass	Youth (3-17) Resident	24.00	25.00	Parks/Rec Director	
Monthly Pass	Youth (3-17) Non-Resident	34.00	36.00	Parks/Rec Director	
Monthly Pass	Adult (18-59) Resident	40.00	42.00	Parks/Rec Director	
Monthly Pass	Adult (18-59) Non-Resident	55.00	60.00	Parks/Rec Director	
Monthly Pass	Senior 60+ Resident	24.00	25.00	Parks/Rec Director	
Monthly Pass	Senior 60+ Non-Resident	34.00	36.00	Parks/Rec Director	
Monthly Pass	Couple - Resident	60.00	63.00	Parks/Rec Director	
Monthly Pass	Couple - Non-Resident	75.00	80.00	Parks/Rec Director	
Monthly Pass	Family - Resident	74.00	78.00	Parks/Rec Director	
Monthly Pass	Family - Non-Resident	99.00	105.00	Parks/Rec Director	
Monthly Pass	Business - Non - Resident Adult	45.00	\$48	Parks/Rec Director	
Monthly Pass	Business - Non - Resident Senior	29.00	\$31	Parks/Rec Director	
Annual Pass	Business - Non - Resident Adult		\$504	Parks/Rec Director	New rate categories added
Annual Pass	Business - Non - Resident Senior		\$302	Parks/Rec Director	New rate categories added
Annual Pass	Youth (3-17) Resident	228.00	\$239	Parks/Rec Director	
Annual Pass	Youth (3-17) Non-Resident	348.00	\$370	Parks/Rec Director	
Annual Pass	Adult (18-59) Resident	420.00	\$441	Parks/Rec Director	
Annual Pass	Adult (18-59) Non-Resident	600.00	\$640	Parks/Rec Director	
Annual Pass	Senior (60+) Resident	228.00	\$239	Parks/Rec Director	
Annual Pass	Senior (60+) Non - Resident	348.00	\$370	Parks/Rec Director	
Annual Pass	Couple - Resident	660.00	\$693	Parks/Rec Director	
Annual Pass	Couple - Non-Resident	840.00	\$890	Parks/Rec Director	
Annual Pass	Family - Resident	708.00	\$743	Parks/Rec Director	
Annual Pass	Family - Non-Resident	888.00	\$950	Parks/Rec Director	
Towel Rental		1.00	1.00	Parks/Rec Director	

Fee Description	Detail	2019 Fee	Proposed 2020 Fee	Responsible Party	Notes
LRC Childcare					
Annual Kids Corner Pass - First child	Resident	250.00	262.00	Parks/Rec Director	Added new categories for non-resident use.
	Non-resident		327.00		
Annual Kids Corner Pass - Each additional child	Resident	50.00	52.00	Parks/Rec Director	
	Non-resident		65.00		
Drop-in 1 hour	Resident	3.00	3.25	Parks/Rec Director	
	Non-resident		4.50		
Drop-in - Additional child same family	Resident	2.50	2.75	Parks/Rec Director	
	Non-resident		3.50		
Punch Card - 10 hours/40 punches	Resident	20.00	21.00	Parks/Rec Director	
	Non-resident		26.00		
Other LRC Programs					
American Red Cross CPR & AED	Resident	53.00	53.00	Parks/Rec Director	
American Red Cross CPR & AED	Non-Resident	66.00	66.00	Parks/Rec Director	
Aquatics Group Lessons	Resident	49.00	50.00	Parks/Rec Director	
Aquatics Group Lessons	Non-Resident	62.00	63.00		
Aquatics Private Lessons	Resident	20.00	30.00	Parks/Rec Director	
Aquatics Private Lessons	Non-Resident	25.00	38.00		
Aquatics Mini-Private Lessons	Resident		15.00		New class options added
Aquatics Mini-Private Lessons	Non-Resident		19.00		
Pool Rental (after hours) - Lap Pool	Resident		\$158/hr		New rental options added
Pool Rental (after hours) - Lap Pool	Non-Resident		\$198/hr		
Pool Rental (after hours) - Progam Pool	Resident		\$158/hr		
Pool Rental (after hours) - Progam Pool	Non-Resident		\$198/hr		
Pool Rental (after hours) - Splash/Lazy River	Resident		\$158/hr		
Pool Rental (after hours) - Splash/Lazy River	Non-Resident		\$198/hr		
Pool Rental (after hours) - Hot Tub	Resident		\$26/hr		
Pool Rental (after hours) - Hot Tub	Non-Resident		\$33/hr		
Pool Rental Extra Guests - 41-80 guests			\$53/hr		
Pool Rental Extra Guests - 81-120 guests			\$105/hr		
Pool Rental Extra Guests - 121-160 guests			\$158/hr		
Pool Rental Extra Guests - 161-200 guests			\$210/hr		
Dance		84.00-120.00	84.00-120.00	Parks/Rec Director	
Fitness Wellness Classes		21.00-240.00	21.00-240.00	Parks/Rec Director	
Lifeguard training	Resident	38.00	38.00	Parks/Rec Director	
Lifeguard training	Non-Resident	38.00	48.00		
Nite at the Rec	Resident	12.00	12.00	Parks/Rec Director	
Nite at the Rec	Non-Resident	15.00	15.00		
Nite at the REC - Purchase of (4) nights	Resident	36.00	36.00	Parks/Rec Director	
Nite at the REC - Purchase of (4) nights	Non-Resident	45.00	45.00		
Senior Activities		5.00 - 100.00	free -100.00	Parks/Rec Director	
Sports/Adult		28.00-450.00	28.00-450.00	Parks/Rec Director	
Sports/Youth		30.00-85.00	30.00-85.00	Parks/Rec Director	
Yoga/ Martial Arts		46.00-75.00	46.00-75.00	Parks/Rec Director	
Youth Activities		10.00-282.00	10.00-282.00	Parks/Rec Director	
Coal Creek Golf Course					
Standard Green Fees (may vary for promotions, etc. with approval of Parks and Rec. Dir.)					
	18 hole weekday	35.00-49.00	35.00-47.00	Parks/Rec Director	

Fee Description	Detail	2019 Fee	Proposed 2020 Fee	Responsible Party	Notes
	18 hole weekend	37.00-56.00	37.00-56.00	Parks/Rec Director	
	9 hole weekday	21.00-29.00	21.00-27.00	Parks/Rec Director	
	9 hole weekend	23.00-32.00	23.00-27.00	Parks/Rec Director	
	Twilight weekday	33.00	23.00 - 30.00 32.00	Parks/Rec Director	
	Twilight weekend	36.00	25.00 - 30.00 35.00	Parks/Rec Director	
	Annual Membership/Unlimited Golf		1,600.00 - 2,200.00	Parks/Rec Director	
Water Tap Fees *					
(larger than 4" tap, fee by agreement with City Council)	By Demand in gpm/tap size:				
	0-22 ¾" tap	30,500.00	53,500.00	Public Works Director	
	23-45 1" tap	54,400.00	95,300.00	Public Works Director	
	46-80 1½ " tap	122,000.00	214,000.00	Public Works Director	
	81-140 2" tap	217,000.00	380,500.00	Public Works Director	
	141-280 3" tap	488,000.00	856,000.00	Public Works Director	
	281-500 4" tap	867,500.00	1,521,700.00	Public Works Director	
*Water tap fee increases go into effect Jan. 15, 2020					
Storm Water Permit Fee					
	1 - 5 Acres		300.00	Public Works Director	
	6 - 25 Acres		625.00	Public Works Director	
	26 - 50 Acres		950.00	Public Works Director	
	51 - 100 Acres		1,250.00	Public Works Director	
	Above 101 Acres		1,500.00	Public Works Director	
Development Review Applications					
All Fees set forth in Section 17					
Annexation & Zoning	Annexation & initial zoning	6,670.00	7,000.00	Planning Director	
Annexation & Zoning	Rezoning	3,990.00	4,190.00	Planning Director	
Wireless Communication Facility	Public review	2,735.00	2,870.00	Planning Director	
Wireless Communication Facility	Administrative review	530.00	550.00	Planning Director	
Other Land Use Fees	Municipal Code Amendment	500.00	525.00	Planning Director	
Other Land Use Fees	Easement or right-of-way vacation	1,840.00	1,930.00	Planning Director	
Other Land Use Fees	Floodplain development permit	470.00	490.00	Planning Director	
Other Land Use Fees	Major Demo Permit Review	455.00	475.00	Planning Director	
Other Land Use Fees	Minor Demo Permit Review	55.00	60.00	Planning Director	
Other Land Use Fees	Variance - Board of Adjustment	745.00	780.00	Planning Director	Added Board of Adjustment
Other Land Use Fees	Variance – Administrative	190.00	200.00	Planning Director	
Other Land Use Fees	Minor Impact Variance	80.00	90.00	Planning Director	
Other Land Use Fees	Oil & gas production permit	3,325.00	3,490.00	Planning Director	
Other Land Use Fees	1041 Permit	1,325.00	1,390.00	Planning Director	
Other Land Use Fees	Vested Right Request	1,585.00	1,660.00	Planning Director	
Other Land Use Fees	LP Gas Sales and Exchange	580.00	600.00	Planning Director	
Other Land Use Fees	Appeal of Zoning Administrator Decision	730.00	765.00	Planning Director	
Other Land Use Fees	Building Code Board of Appeals Appeal Application	730.00	765.00	Planning Director	
Other Land Use Fees	Nonconforming Use Certificate Request	1,830.00	1,920.00	Planning Director	
Planned Community Zone District	PCZD (< 100 acres)	5,135.00	5,390.00	Planning Director	
Planned Community Zone District	PCZD (> 100 acres)	5,785.00	6,070.00	Planning Director	
Planned Community Zone District	PCZD amendment	1,830.00	1,920.00	Planning Director	
Planned Unit Development	PUD – preliminary review (< 7 acres)	2,735.00	2,870.00	Planning Director	
Planned Unit Development	PUD – final review (< 7 acres)	2,735.00	2,870.00	Planning Director	
Planned Unit Development	PUD – preliminary review (> 7 acres)	3,325.00	3,490.00	Planning Director	
Planned Unit Development	PUD – final review (> 7 acres)	2,735.00	2,870.00	Planning Director	
Planned Unit Development	PUD – amendment	1,830.00	1,920.00	Planning Director	

Fee Description	Detail	2019 Fee	Proposed 2020 Fee	Responsible Party	Notes
Planned Unit Development	Administrative PUD amendment	530.00	555.00	Planning Director	
Special Review Use	Special Review Use (SRU)	1,210.00	1,270.00	Planning Director	
Special Review Use	SRU amendment	1,000.00	1,050.00	Planning Director	
Special Review Use	SRU (use only, no development)	500.00	525.00	Planning Director	
Special Review Use	SRU administrative	345.00	360.00	Planning Director	
Special Review Use	Day Care (Neighborhood 6 – 12 children)	355.00	370.00	Planning Director	
Subdivision	Preliminary plat (≤ 15 acres)	1,340.00	1,400.00	Planning Director	
Subdivision	Preliminary plat (> 15 acres)	3,400.00	3,570.00	Planning Director	
Subdivision	Final plat (all) & Final agreement(s) (with final PUD)	1,060.00	1,110.00	Planning Director	
Subdivision	Final plat (not accompanied by a PUD)	1,895.00	1,980.00	Planning Director	
Subdivision	Minor subdivision	1,895.00	1,980.00	Planning Director	
Temporary Uses	Temporary use permit (administrative)	190.00	200.00	Planning Director	
Temporary Uses	Temporary use permit (public review)	335.00	350.00	Planning Director	
Temporary Uses	Temporary sign permit	95.00	100.00	Planning Director	
Zoning Code Amendment		555.00	580.00	Planning Director	
Zoning Map Amendment		565.00	590.00	Planning Director	
Impact Fees					
	See Table 1 of Attachment 1			Planning Director	Updated annually on November 1st for inflation per Ordinance No. 1737, Series 2017
Revocable License Agreements					
	Staff/Attorney Fees	TBD	TBD	City Manager	
	Fees may be charged to recoup city costs, including city attorney fees			City Manager	
Public Works					
Temporary Easements	Construction, Slope, etc.	10.00	10.00	Public Works Director	Will continue to track inflation & adjust as needed
IPP Sampling Fees	Cost for sampling Industrial Users - Market Value	TBD	TBD	Public Works Director	
Utility Fees					
Re-use Water Fee		75% of Residential Rate	75% of Residential Rate	Public Works Director	
Account Delinquent Fee	Charged when bill is 30 days past due	00 + 1%/Month	\$5.00 + 1%/Month	Finance Director	Will continue to track inflation & adjust as needed
Final Bill/Transfer Fee	Covers cost of final reading, final billing and transfer account. Charged to seller when property is sold	25.00	25.00	Finance Director	Will continue to track inflation & adjust as needed
Reconnect Fee for Utilities	1 st occurrence			Finance Director	
Reconnect Fee for Utilities	Normal business hours	25.00	25.00	Finance Director	Will continue to track inflation & adjust as needed
Reconnect Fee for Utilities	After hours	50.00	50.00	Finance Director	Will continue to track inflation & adjust as needed
Reconnect Fee for Utilities	2 nd occurrence			Finance Director	
Reconnect Fee for Utilities	Normal business hours	50.00	50.00	Finance Director	Will continue to track inflation & adjust as needed
Reconnect Fee for Utilities	After hours	75.00	75.00	Finance Director	Will continue to track inflation & adjust as needed
Reconnect Fee for Utilities	Subsequent occurrences			Finance Director	
Reconnect Fee for Utilities	Normal business hours	75.00	75.00	Finance Director	Will continue to track inflation & adjust as needed
Reconnect Fee for Utilities	After hours	100.00	105.00	Finance Director	5% inflator applied
Red Tag Fee (Delinquency Notice)	Fee for hanging notice at time account is 30 days past due	15.00	15.00	Finance Director	Will continue to track inflation & adjust as needed
Service Fee for rejected payment		25.00	25.00	Finance Director	Will continue to track inflation & adjust as needed
Voluntary Disconnect & Reconnect Fee	Per disconnect and per reconnect	25.00	25.00	Finance Director	Will continue to track inflation & adjust as needed
Approved:					
Heather Balsler, City Manager					

Fee Description	Detail	2019 Fee	Proposed 2020 Fee	Responsible Party	Notes

TO: Heather Balsler, City Manager
FROM: Kurt Kowar, Director of Public Works
 Cory Peterson, Water Resources Engineer
DATE: October 30, 2019
SUBJECT: 2020 Tap Fee Adjustments

The purpose of this memo is to outline the process for the 2020 tap fee adjustments. Tap fees are charged to new utility customers to connect to the City’s water and wastewater systems, and are based on the current value and size of the utility system along with the value of the City’s water rights portfolio.

Section 13.12.040 of the municipal code requires tap fees to be established by the City Manager and included in the annual table of fees. Periodically, Staff performs a review of the tap fee components to update the utility valuation assumptions. The updated information is inputted to tap fee calculation worksheets developed as part of the Financial Rate Update conducted in 2013/2014 by Raftelis Financial Consultants.

The 2020 review indicates an increase in tap fees. The proposed increase is significantly influenced by recent changes in the Water Resources Fees for water rights. The last tap fee adjustment, performed in 2016, utilized a market CB-T unit value of \$24,000 to \$25,000. The average sale price has rapidly increased from around \$30,000 per unit early this year to \$48,500 in July to an average price of \$55,900 per unit as determined by a sale of a large block of 171 units in August. Provided below is a graph of historical CB-T prices.

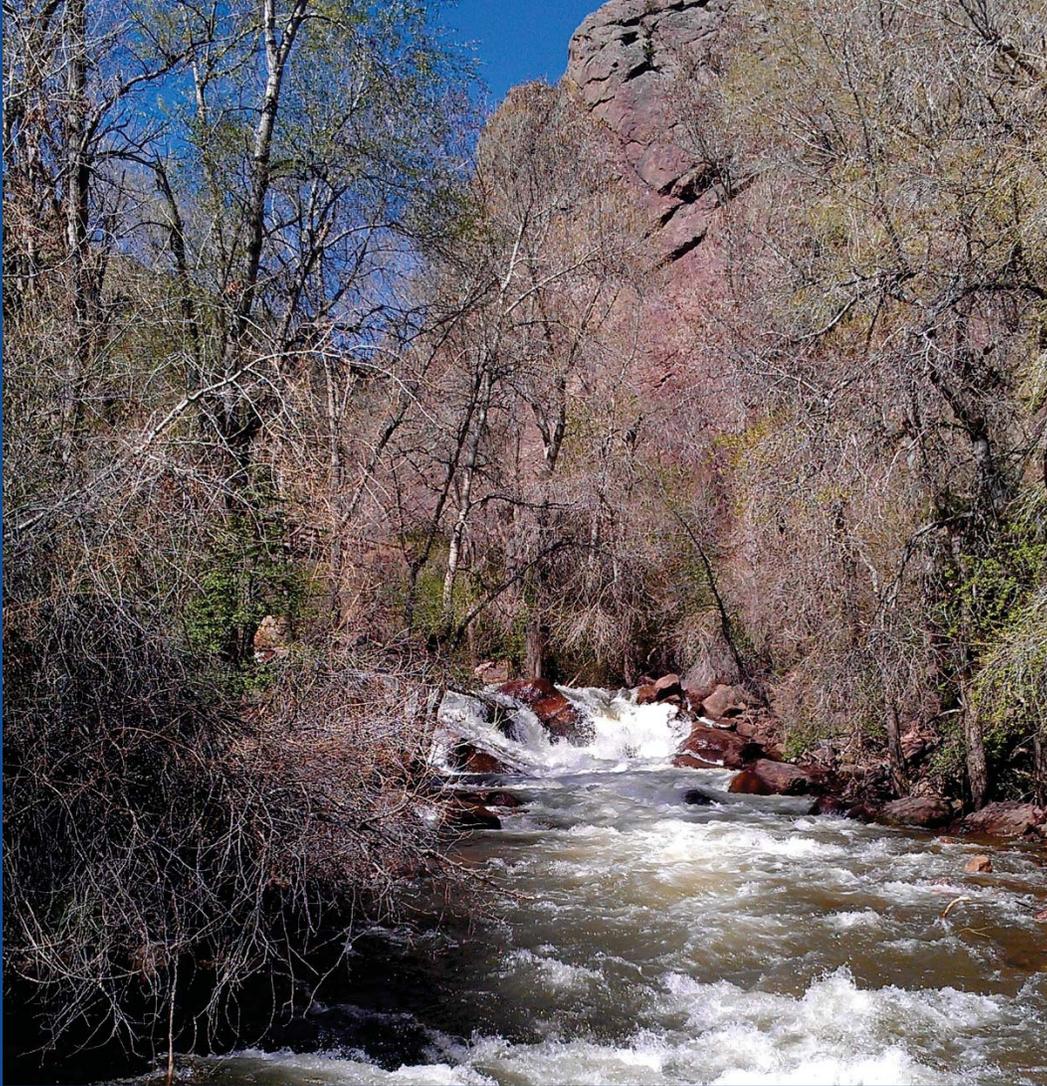


It is common practice to utilize CB-T units for determining the market of water rights in the Front Range. CB-T units have a unique characteristic of being decreed in water court for agricultural, hydroelectric power, industrial and municipal uses. As a result these water rights have known yields and are not subject to lengthy and costly engineering and legal analyses to use within the City system. This also allows for the units to be freely bought and sold giving a more precise indication of market value of water rights.

The surrounding communities of Broomfield and Superior are moving forward with planned tap fee increases for 2020 that were developed prior to the increase in CB-T prices. Additionally, Lafayette was not planning on raising fees in 2020. However, Lafayette's new management team is reconsidering this position and working towards a possible adjustment based on the new market.

An option to provide water rights in lieu of the water resources fee is being developed by Staff. This option will require a modification to the municipal code to define the process and provide clarity. The framework for this option is anticipated to be complete in early 2020.

Staff proposes following the same process from 2016 which includes posting notice of the increase on the City website and building permit counter 3 months in advance of the increase. The notices will be prepared and posted on November 15th, making the new rates effective February 15th, 2020. Development projects currently in progress or that submit within this 3 month window will be subject to the 2016 fees. Any development project submitted after the deadline will be evaluated under the new 2020 fees.



Municipal Water Management Plan

City of Louisville, Colorado

October 2016



Municipal Water Management Plan

For the City of Louisville, Colorado

Prepared by



*In Collaboration with
Spronk Water Engineers, Inc*

October 2016

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1. South Boulder Creek Straightline Map
2. Louisville Firm Yield Scenarios Graph
3. Possible Buildout Demands Graph

INTRODUCTION

This Water Management Plan (“Plan”) is recognized as part of the City of Louisville’s (“City”) continuing long range water resource planning process. The Plan’s purpose is to keep the planning process updated using current water related data. Aspects and updates related to the City’s databases, operation and management goals and general water-related policies adopted in this report are consistent with other recently available City documents, most notably the Comprehensive Plan. Additionally, this Plan is also recognized as a continuation of previous “Raw Water Master Plans” prepared for the City in 1992, 1998, and 2003. This previous planning and foresight has resulted in the development of varied water resources sufficient to supply the City’s current water needs through drought periods.

The purpose of this report, however, varies in context from previous studies with regard to the following topics: water supply operations, historical trends, drought management planning, climate change implications, and future water acquisitions. The basis of this difference is found in the report’s structure to provide practical alternatives for each of these components, rather than solely identifying technical results. This report also includes the additional consideration that such alternatives will need to be reviewed and modified on a regular basis, especially as further hydrological information becomes available.

This report is categorized into the five sections mentioned above. The overall methodology used in developing the report was to initially establish a comprehensive scientific database using the study period of 2003-2015, and adding to the previous City Raw Water Master Plan database (1950 - 2002). Data from the previous Raw Water Management Plan was updated through 2015. Subsequently, the updated database provided the necessary information to perform the other analyses described within this report. The other categories were identified and selected because of their importance in providing the City’s staff the necessary information to proceed with its water resource project planning, budget development, city-wide water operations enhancements, and proposed water right acquisitions.

This report also provides practical City-wide alternatives to improve overall efficiency and maximize Louisville’s annual water supplies. These comments are based on Resource Based International’s (“RBI”) past five years of administering the City’s water rights and, recognizing operational constraints. This practical approach precluded the need to do City-wide operational modeling. This report does address areas of management that may require further modeling efforts, but these future efforts need to be strategic in purpose and address only a few operational scenarios rather than reexamine the entire City-wide operations.

A new addition to the City’s water resource planning is the evaluation of potential climate change impacts on the City’s water rights and raw water operations. Climate change impacts were evaluated using the results of previous regional climate studies to project potential effects on Louisville’s water operations and infrastructure. The purpose of the climate change evaluation was to: (1) focus on possible changes related to the City’s water supplies and demands; (2) determine climate change effects on the City’s current drought management strategies; and (3) adjust the City’s long term water supply planning to adapt to climate change effects.

The report concludes with a summary of the study’s findings and a list of alternatives for continuing to optimize the City’s water resources. RBI recommends updating or supplementing this report as needed based on further information.

LOUISVILLE’S WATER SUPPLY SYSTEM OPERATIONS

The City of Louisville’s water supply system is supplied with diversions from South Boulder Creek through two diversion structures: the Louisville Pipeline and the Community Ditch. South Boulder Creek diversions can be conveyed directly to the City’s water treatment plants - Sid Copeland Water Treatment Plant (“SCWTP”) and the Howard Berry Water Treatment Plant (“HBWTP”) – or stored for later use in the City’s storage facilities. The City’s water system is supplemented with deliveries of water from the Colorado Big Thompson Project via a pipeline to the SCWTP. Future deliveries from the Windy Gap FIRMing Project will also supplement the City’s water supply. A map of the City’s water supply is attached as Figure 1.

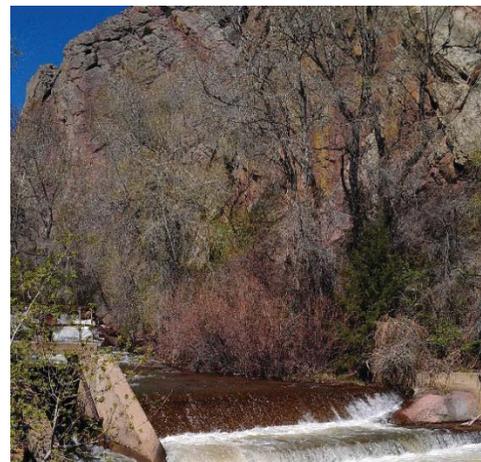
The following discussion provides a background description of the City’s raw water supply systems/ operations and identifies the existing constraints within the system.

Water Supplies

South Boulder Creek Water Rights

Diversions

Louisville has forty-four combined direct flow and storage water rights, from thirteen ditch companies that are administered on a daily basis on South Boulder Creek. The majority of Louisville’s water rights are direct flow rights that are available only during the irrigation season (April through October) and can be used for direct use at the treatment plants, or stored in Harper, Louisville, or Marshall Reservoirs. Louisville also has storage water rights, which are available only in the non-irrigation season (November – March), that are typically diverted at the Louisville Pipeline and stored in Louisville or Harper Reservoirs until the following spring. To the extent possible, Louisville historically stored this water prior to delivery to the treatments plants to obtain the highest possible level of water quality.



South Boulder Creek

Water rights are administered on hydrological and legal considerations by the State of Colorado and are allocated pursuant to the Prior Appropriation Doctrine: first in time, first in use. Water rights are characterized as having “senior” to “junior” status; in times of water shortage, senior rights are allowed to divert their full entitlement water before any junior rights are allowed to divert. The City operates its water rights on a daily basis depending on: (1) water availability in South Boulder Creek; (2) legal and administrative constraints associated with each right; (3) delivery rate limits related to pipelines and treatment capacities; and (4) daily City water demands. The City’s most senior rights are available in all years, whereas the junior rights typically are available in only average to above average runoff years (Table 1). Operations and diversions are also determined by the City’s daily municipal water demands and the delivery system capacities of the treatment plants.

Table 1
Summary of Louisville's Direct Flow Water Rights

	NAME	CASE	PRIORITY			START DATE		END DATE	
			MON	DAY	YR	MO	DAY	MON	DAY
Senior Rights	HOWARD DIVERSION	(W-8500-77)	4	1	1850	4	1	10	31
	HOWARD CU	(W-8500-77)	4	1	1860	4	1	10	31
	HOWARD CU 2	99CW230	4	1	1860	4	1	10	31
	HOWARD .65	(21299)	4	1	1860	4	2	10	30
	HOWARD	(10904 & 12698)	4	1	1860	4	1	10	31
	McGINN DITCH	87-CW-327	5	1	1860	4	1	10	31
	EAST BOULDER	(82CW305)	4	1	1862	4	1	10	31
	COTTONWOOD #2	(W-9193-78)	4	15	1863	5	1	8	31
	COTTONWOOD No. 2	99CW230	4	15	1863	5	1	8	31
Mixed Rights	DRY CREEK DAVIDSON	(12698)	5	1	1863	4	1	10	31
	DRY CREEK #2	(21299)	5	1	1864	4	2	10	30
	DRY CREEK NO. 2	(W-8500-77)	5	1	1864	4	15	10	1
	DRY CREEK No. 2 CU	99CW230	5	1	1864	4	15	10	1
	ENTERPRISE	(21299)	2	1	1865	4	2	10	30
	ENTERPRISE	(82-CW-305)	2	1	1865	4	15	9	15
	LEYNER COTTONWOOD S	87-CW-327	4	1	1865	4	15	9	15
	McGINN DITCH	87-CW-327	6	1	1865	4	25	8	31
	MARSHALLVILLE DITCH	87-CW-327	6	1	1865	4	25	8	31
	LEYNER COTTONWOOD M	87-CW-327	4	1	1866	4	15	9	15
	LEYNER COTTONWOOD J	87-CW-327	10	1	1870	4	11	9	24
Junior Rights	DAVIDSON DITCH	(83-CW-319)	4	15	1872	4	25	8	31
	S BOULDER & COAL CREEK	(21299)	6	1	1872	4	2	10	30
	S.B.C.C. (DIRECT)		6	1	1872	5	1	8	31
	GOODHUE DITCH	(83-CW-319)	5	1	1873	4	25	8	31
	MARSHALLVILLE DITCH	87-CW-327	6	30	1878	5	15	7	12
	COMMUNITY DIRECT		6	6	1885	5	1	7	25
	LOUIS. PIPELINE	(83CW318)	6	18	1983	11	1	10	31
GOLF COURSE DIRECT	88-CW-172	9	20	1988	11	1	10	31	

South Boulder Creek water rights are generally categorized into three groups: Marshall Lake shares; South Boulder and Coal Creek Ditch shares; and all other South Boulder Creek water rights

- *Marshall Lake Shares* – Marshall Lake is owned and operated by Farmers Reservoir and Irrigation Company (“FRICO”). FRICO diverts water from South Boulder Creek under a number of winter storage rights for the benefit of their shareholders. At the end of the winter storage season, FRICO allocates the water in storage at Marshall Lake to its shareholders. The City receives a pro-rata portion of the allocation which becomes available for use in the City’s water system. The primary Marshall Lake storage rights are senior to all other winter storage rights on the South Boulder Creek and the South Platte.

The Marshall Lake summer direct flow rights are generally available to divert during May 15 - July 15. Marshall Lake direct flow rights yield water to the City in average to above average streamflow years. As a result, these direct rights do not contribute to dry-year supplies (“firm yield”) unless they were stored the previous year.

- *South Boulder and Coal Creek Ditch Shares (“SBCC”)* - The SBCC ditch originally had its own headgate on South Boulder Creek. In 1940, after a flood, the ditch company legally changed the

point of diversion location downstream to the Community Ditch. Accordingly, the South Boulder and Coal Creek Ditch currently delivers water diverted, pursuant to its decrees, to company's shareholders via the Community Ditch and through Marshall Lake. Louisville is the majority owner of SBCC shares which consist of direct flow and storage rights.

- *Other South Boulder Creek Water ("Other SBC")* - All other water diverted from South Boulder Creek that is not associated with the Marshall Lake or SBCC shares is referred to Other South Boulder Creek Water. When this water is diverted through FRICO facilities, Community Ditch and Marshall Lake, it is referred to as Foreign Water. Other SBC water is comprised of both direct flow and storage water rights. The direct flow rights were originally irrigation rights but have subsequently been acquired and transferred through water court by the City for municipal use. This category of water rights constitutes 36 of the 44 South Boulder Creek water rights owned by Louisville. These supplies include a range of senior to junior water rights, with the majority of the rights available during May-June each year. All of these rights are decreed for diversion at the Community Ditch, the Louisville Pipeline, or both.

Return Flow Obligations

Many of the transferred water rights (from agricultural to municipal use) purchased by the City have two components: consumptive use credits and return flow obligations. The consumptive use credit is that portion of the water right that was historically consumed by the crop; the return flow obligation is that portion that represents surface and groundwater runoff resulting from historical irrigation practices. The City is entitled to use its entire share of consumptive use credits but must replace the return flow component back to stream system.

Return flow obligations usually represent about 20-25% of the water diverted from South Boulder Creek with some variability based on individual water rights. Some water rights have a higher percentage than others while many of the older water right transfer cases decreed by the City did not have any return flow component. Further, return flow obligations are separated into surface return flows and groundwater return flows. Surface return flows are returned to South Boulder Creek at the time the specific water right is diverted; groundwater return flows are lagged to simulate the historical groundwater travel time to reach the creek. Lagged groundwater return flow obligations are returned as specified in the various water right decrees.

City Reuse Potential

Only Marshall Lake shares and SBCC rights can be utilized by the City for reuse under current conditions; these rights have specified reuse terms in their decrees allowing the City to 'recycle' the water and send it to the City's reuse water system. This water is defined as reusable water and these "credits" are available to the City for other uses, including replacing return flow obligations discharged from the wastewater treatment plant. All other South Boulder Creek water rights with potential return flow credits require future water court action for reuse approval. Windy Gap Firming water, outlined below, will also be reusable within the City's system once available.

A prior analysis was performed by RBI to determine the amount of reuse water that was available during a study period of 2004-2014. The results indicated that Louisville annually averages approximately

1,100 acre-feet ("AF") of reusable water. Historically, replacing the required daily return flow requirements was the first priority for which this reusable water was used.



Coal Creek Golf Course

The second use of reusable credits is supplemental irrigation supplies at the Coal Creek Golf Course ("golf course") and City parks. Historically, when excess reusable water was available, the golf course and parks received deliveries from July-October.

Study results indicate that while there is sufficient reusable water supplies in average and above average years for use in the City, reusable supplies are available in amounts only sufficient to meet return flow obligations after the first year of a drought. During the second year of a

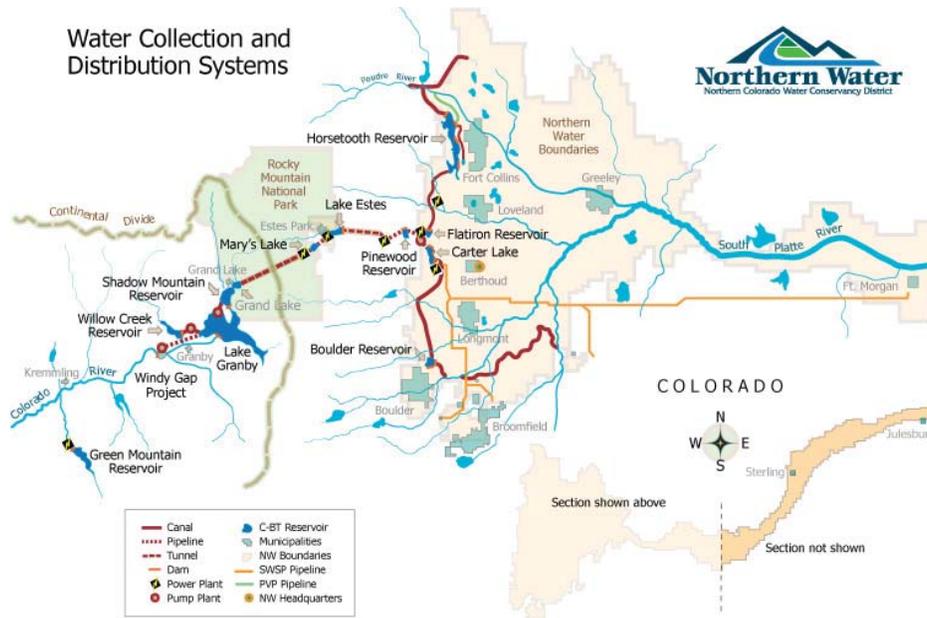
drought, the City's return flow obligations dominate the use of the reusable water. As the

City seeks to refill Marshall Reservoir as expediently as possible, increased diversions magnify the return flow obligations that are typically spread over the entire diversion season. As a result of these increased return flow obligations incurred while filling Marshall Reservoir, no reuse water is available to supply water for any other uses. Further, because reuse supplies and return flow obligations are essentially the same during droughts, reuse water does not contribute to the City's firm yield supplies.

Colorado – Big Thompson Units (C-BT)

A significant supplemental supply source for the City are C-BT units that are derived from the Northern Colorado Water Conservancy District ("NCWCD") storage and delivery system. The C-BT system collects water from the Colorado River headwaters, on the West Slope, and diverts it through a series of tunnels to the Eastern Slope. C-BT water (and future Windy Gap water) is then delivered to the City via the Southern Water Supply Project ("SWSP") pipeline. C-BT units have been considered a primary option for meeting future demands and drought protection (C-BT's source of supply is located on the west slope). Purchase and use of C-BT units are not subject to the usually required water court transaction associated with South Boulder Creek rights. C-BT units are legally available for municipal use at the time of purchase, thereby making these units a viable water source for the future. Louisville owns 2,067 C-BT units which yield an average of 0.70 AF/unit of water annually. C-BT units are comprised of "one-time" use water only, and therefore, cannot be reused within the City's system.

Water Collection and Distribution Systems



C-BT System

Windy Gap Firing Project (Windy Gap Firing)

The Windy Gap Firing Project is an ongoing project of the Northern Water Municipal Subdistrict to divert and store west slope water supplies in the yet-to-be-built eastern slope storage - Chimney Hollow Reservoir.

Windy Gap Firing Project supplies have also been considered a viable water source for the same reasons as C-BT units. However, for planning purposes, Windy Gap Firing water has been considered drought protection rather than an average year water supply, based on costs and operations. Windy Gap Firing water rights are subject to transaction constraints similar to C-BT units. Further, Windy Gap Firing's west slope rights are junior and can be diverted to east slope reservoirs only during times of water and storage availability on the west slope. As a result, and until such time Chimney Hollow Reservoir is constructed, the junior priority of the Windy Gap Firing water rights does not provide a significant benefit to the City (Louisville has not utilized Windy Gap water supplies).



Windy Gap Reservoir – Northern Water

Upon completion of the reservoir, the Windy Gap Firing Project will divert water from the West Slope in times of sufficient supply, store the water in the newly completed reservoir, and then release this water to the City in times of water shortage (dry years and droughts). Through Louisville's ownership of

9 units of Windy Gap water supplies, the City is entitled to 2,700 AF in Chimney Hollow Reservoir and the guaranteed firm water yield is anticipated to average 600 AF per year. Windy Gap Firming water is reusable, however acquisition costs are substantially higher than C-BT units.

Louisville Water Facilities

Water operations at the City of Louisville involve the following components: raw water diversions and deliveries to storage facilities, distributions to the treatment plants, reuse from the wastewater treatment plant, and deliveries to the golf course and parks to the extent water is available. This section describes each phase of the operations system.

Ditches and Pipelines

Louisville has three main conveyance structures from which the City obtains its raw water supplies: Community Ditch, Louisville Pipeline, and the Southern Water Supply Project pipeline. An ancillary structure is the Louisville Lateral, the predecessor to the Louisville Pipeline.

Community Ditch



Community Ditch

The Community Ditch, the City's primary diversion structure on South Boulder Creek, is located near Eldorado Springs. The ditch diverts both storage (winter) and direct flow (summer) water rights and has a maximum capacity of approximately at 250 cubic feet per second (cfs). The Community Ditch can be used to divert the City's Marshall Lake share water (direct flow and storage), the City's SBCC share water, and the City's Other SBC water.

The Community Ditch is owned and operated by FRICO and Louisville is allowed to use the ditch pursuant to several FRICO/Louisville agreements, the latest signed in 1992. The City's diversions are coordinated on a daily basis with FRICO and water commissioner to divert the City's water entitlements.

Louisville Pipeline

The Louisville Pipeline also diverts from South Boulder Creek near Eldorado Springs and can deliver water to the SCWTP, Harper Reservoir, Louisville Reservoir, HBWTP, or Marshall Reservoir. It is owned solely by the City. The design capacity of the pipeline is 7.7 cfs, but recent diversions have been closer to 5.0 cfs. The Louisville Pipeline can be used to divert the City's Marshall Lake share water (direct flow and storage), the City's SBCC share water, and the City's Other SBC water.

Typically, the pipeline operates year round delivering direct flow water rights in the summer and Louisville Reservoir storage rights in the winter. Pursuant to the reservoir's storage decree, Louisville is allowed to store up to 210 AF annually during dry years winter periods. Most of Louisville's senior water rights are entitled to divert at the Louisville pipeline and/or the Community Ditch. Therefore, especially during drought periods, the pipeline offers the City a primary diversion point that increases yield to the city at a rate up to 10 AF per day.



Louisville Pipeline Diversion Structure

Additionally, Louisville has an agreement with the Town of Eldorado Springs that allows the Town to use a small portion of the pipeline capacity for its water rights' operations. This agreement does not impair Louisville's ability to fully utilize the capacity of the pipeline, but it does provide Eldorado Springs the required infrastructure to operate its water system in compliance with its water court decree.

SWSP Pipeline

The SWSP delivers C-BT/Windy Gap supplemental water directly to the SCWTP or to Louisville Reservoir. The pipeline's capacity is 4.2 cfs. In the summer months, the SWSP cannot fully meet the SCWTP demands, and therefore a combination of SWSP deliveries and diversions from the Louisville Pipeline, Harper Reservoir, or Marshall Lake releases are required.

Louisville Storage Facilities

The City has access to four reservoirs to store its raw water supplies: Marshall Lake, Harper Reservoir, Louisville Reservoir, and McKay Reservoir. Marshall Lake and McKay Reservoir are owned and operated by FRICO. Harper and Louisville Reservoirs are owned by the City. The following is a brief description of the operation for each storage facility and its role within the City-wide water storage system.

Marshall Lake



Marshall Lake

Marshall Lake is the primary storage facility for the City with a storage capacity of 9,655 AF; Louisville's pro-rata portion is approximately one-third of the total capacity. Use and operation of the reservoir is primarily shared between other FRICO shareholders (irrigation use) and the City (municipal use). In addition to Marshall Lake share water, the City can store Other SBC Water (Foreign Water) in the reservoir.

Louisville's use of Marshall Lake is subject to the terms of the 1992 FRICO/Louisville Agreement.

There are two basic operational scenarios related to City operations:

Scenario 1: Marshall Lake fills to full capacity in April-May

Scenario 2: Marshall Reservoir does not fill to capacity during the year

If the Marshall Lake fills to capacity, Other SBC Water/Foreign Water stored in the reservoir during the prior water year is booked over (a.k.a. spilled) to make storage space available for Marshall Lake share water. Once the irrigation releases from the reservoir begin, usually in late-July, storage space becomes available in Marshall Lake. At that time, Louisville is then entitled to store its Other SBC/Foreign Water supplies in the "excess" storage space created by these irrigation releases from FRICO storage.

In those years that the reservoir does not fill during the preceding winter storage season, Louisville's prior water year Other SBC/Foreign Water does not spill and the City is typically able to store this water year's Other SBC/Foreign Water in Marshall Lake's excess space beginning in April. Factors that determine whether Marshall Lake fills each year is a function of the previous year's carry-over in the reservoir, winter snowpack, and springtime runoff flows in South Boulder Creek. Releases from Marshall Lake supply the HBWTP; Marshall Reservoir can also deliver water to the SCWTP and the golf course, but only through the Louisville Lateral and Cherry Street Pipeline.

Harper Reservoir

Harper Reservoir is a secondary storage site for Louisville and has a capacity of approximately 750 AF. Harper Reservoir is supplied by the Louisville Pipeline or Louisville Lateral. Water delivered from Harper Reservoir can be stored in Louisville Reservoir or used directly at the SCWTP.



Harper Reservoir

Louisville Reservoir

Louisville Reservoir is operated as a “forebay” to the North Plant. Its purpose is to supply water directly to the SCWTP, which is located adjacent to the reservoir. The reservoir has a capacity of 210 AF and is rarely lowered below 190 AF. Water deliveries to the reservoir are made through the Louisville Lateral, the Louisville Pipeline, or the SWSP Pipeline.

McKay Reservoir

McKay Reservoir is located in the Big Dry Creek basin outside of the City’s water delivery system and, therefore, does not directly contribute to City’s raw water supply. Instead, McKay Reservoir can be used to fulfill certain legal requirements associated with the City’s Marshall Lake Division’s direct and storage rights. As a result, McKay Reservoir serves a solely administrative function for the City. However, recent court cases involving Marshall shares from the Big Dry Creek basin have required return flow obligations



McKay Reservoir

to be released to the Big Dry basin to maintain the historical flow patterns. City water stored in McKay Reservoir can potentially be released to fulfill these obligations. Further, it is anticipated that future Marshall Lake shares acquired by the City or any other municipality will have similar return flow obligations to Big Dry Creek. As a result, the future use of McKay Reservoir is expected to integrate more fully into the City-wide operations and have an increasing level of use to meet Louisville’s Big Dry Creek return flow obligations.

System Constraints

In Louisville’s collection and distribution system, not all available water supplies can be utilized at their maximum levels due to constraints involving pipeline capacity, storage capacity, timing of available

supplies, and timing of City's daily municipal demand. As a result, water supplies have historically been diverted at lower rates than the City's maximum legal entitlement because of these constraints.

Many of the constraints listed below occur in only extreme conditions: drought or high flows. However, many other constraints are chronic issues that occur irrelevant of the annual streamflow or supply source. While these constraints are limiting factors affecting the City's water supply system and subsequent delivery to the treatment plants or reservoirs, modifications to specific system operations can be made to address these constraints and minimize their effects.

Three issues are directly or indirectly related to the potential use of the Louisville pipeline: pipeline capacity, timely head gate operations, and a lack of available City storage during April 15 - July 15.

Constraint No. 1 – Louisville Pipeline

The Louisville pipeline has a design capacity of 7.7 cfs, when utilizing the booster pump station. Typically operations are in the range of 2.0 – 5.0 cfs to ensure pipe pressures do not stress the system. Throughout the study period, South Boulder Creek records indicate that streamflows in excess of the pipeline flow capacity were available at various times to divert at the pipeline. Consequently, the records consistently demonstrate that water which could have been diverted to the City's treatment plants and reservoirs, was instead bypassed at the intake on South Boulder Creek. For example, in 2014-2015, 82 AF of water was not diverted at the pipeline at times that demand and/or storage was available but pipeline capacity was limited.

Lack of timely head gate operations also limits the use of the pipeline. Daily water rights administration can dramatically change during the summer months due to rainstorms. Subsequent storm water runoff becomes available at the pipeline for short periods of time (1-3 days) as the storm surge moves downstream. However, time constraints related to shifting manpower duties, required travel distance to the pipeline headgate, and daily (even hourly) communication requirements between staff members cause much of this available storm water to bypass the pipeline intake before the adjustments can be completed. Historically, on average, 155-180 AF per year has not been diverted due to operational constraints. However, it is anticipated that recent (2016) repairs and projected improvements at the pipeline intake will address the majority of these operational issues.

Constraint No. 2 – System-Wide Storage Capacity

Storage space is a limiting constraint to optimize water yields from Louisville's water rights portfolio. At times during the study period, Louisville had more water yield than available space to store it. For example, on years that Marshall Lake fills to capacity (63% of the time), an average of 680 AF of foreign water stored in Marshall Lake the previous year by Louisville is "spilled" from the reservoir to make space for water diverted under FRICO's Marshall Lake Division storage rights. (This water is not physically spilled from the reservoir but rather "booked" from the Louisville account over to the FRICO account in Marshall Reservoir.) When Marshall Reservoir spills occur, up to approximately 67% of this water is lost from Louisville's system and cannot be recaptured by the City. The remaining 33% amount is redistributed to the City through its ownership of its Marshall Division shares.

Some water rights were not diverted during many years of the study period due to lack of existing daily demand levels and/or storage space. This was anticipated in Louisville's earlier Raw Water Management

Plans with the understanding that many of the rights would be primarily used for the following purposes:

- Drought protection, and thus not diverted during average years;
- Refill of the City's storage facilities following a drought;
- Meeting the City's future demands up to build-out levels.

Storage limitations also have a significant impact on South Boulder Creek diversions. At certain times during the year (April-July) in which Louisville is entitled to divert, the system-wide storage capacity often has no excess capacity to store potential diversions. As a result, the only option is to bypass the flow at the Community Ditch headgate and/or the Louisville Pipeline intake. On average, system-wide storage constraints decrease diversions at the pipeline by 300 AF per year.

Constraint No. 3 – SWSP Pipeline Capacity

C-BT water deliveries to the City from the SWSP are currently limited to a 4.2 cfs flow rate because of pipeline capacity limitations (Louisville has the ability to increase the pipeline capacity to 7.2 cfs , effectively improving the City's firm yield during droughts). While the 4.2 cfs flow rate is adequate for wintertime deliveries, the SCWTP summertime demands exceed this flow rate. Therefore, historically during the summer months, C-BT units have been considered supplemental supplies for use at the SCWTP. The reasons for this were two-fold: (1) South Boulder Creek supplies are less expensive to deliver to the treatment plants (gravity flow); and (2) flow restrictions associated with the SWSP. These restrictions preclude higher C-BT delivery rates during summer peak demands and prolonged drought periods, resulting in larger releases from Marshall, Harper, or Louisville Reservoir. These releases from the City's storage facilities may cause implementation of Louisville's Drought Plan, despite adequate stored C-BT's supplies within the NCWCD system.



Southern Water Supply Pipeline – Northern Water

Due to high operational costs (pumping costs and annual assessments) it is more economical for the City to use its C-BT annual allocations prior to any use of Windy Gap Firming diversions. Because the City has sufficient C-BT water supply in average runoff years, Windy Gap Firming water would be used during only drought periods. However, until the Windy Gap Firming Project is completed with east slope storage, the water supply is not considered a viable water supply source in dry year periods.

Additionally, the lack of capacity in the SWSP also limits the City's ability to deliver Windy Gap Firming water. Firm yield analysis results show that for Louisville to reach the maximum firm yield levels with its current water supplies, C-BT and Windy Gap Firming supplies need to be diverted simultaneously to the SCWTP.

Constraint No. 4 – Louisville Lateral

Use of the Louisville Lateral was limited during the study period due to conveyance and maintenance issues related to the structure. Only two short-term releases were made from Marshall Lake to the lateral in 2007 and 2008. Therefore, it's generally recognized that during the study period there was no demand for the lateral's use - given that the SCWTP demands were met through the Louisville Pipeline.

Expected future use of the Lateral is related to the SCWTP water deliveries at times when demands exceed the Louisville Pipeline capacity. At such times preserving C-BT water sources is possible and desirable, the lateral could be operated simultaneously with the pipeline to maximize South Boulder Creek water deliveries to: (1) Louisville Reservoir for later diversion into the SCWTP; or (2) Harper Reservoir for subsequent delivery to Louisville Reservoir.

Constraint No. 5 - South Boulder Creek's Instream Flow

The Colorado Water Conservation Board ("CWCB") filed an instream flow water right below the reach of South Boulder Creek from which Louisville diverts at the Community Ditch and the Louisville Pipeline. The purpose of the instream flow right is to protect the fishery and riparian habitat from low streamflow conditions. The filing was made in December, 1980 for 15 cfs minimum flow rate in the summer and 2 cfs in the winter. For a variety of legal reasons specific to in stream flow rights, the CWCB water right is administered as a "senior" right to approximately 82% of Louisville's South Boulder Creek water rights. Therefore, at times the instream flow water right is the calling right on South Boulder, Louisville must curtail a majority of its diversions.



South Boulder Creek - Howard Ditch Headgate

DATA COLLECTION AND HISTORICAL TRENDS

Previous water planning reports conducted for the City utilized sophisticated computer modeling techniques to assess current and future water operations. RBI used the results of these modeling efforts, extended the previous master plan database, and then combined them with the practical experience of operating Louisville's water rights system to provide: (1) a description of the ongoing

management practices; and (2) changes to the current system and evaluate future operation alternatives.

Period of Record

The study period for this report's database was 2004-2015. The database included available information related to the City's water demands and supplies during these specific years. Once developed, the 2004-2015 database was integrated with the 2003 Raw Water Master Plan's database to create a continuum of data through 2015. The City's "water supply" was calculated using the historical daily, monthly, and annual amounts of water diverted and stored. Conversely, treatment plant records, golf course irrigation use, and other reuse needs comprised the City's overall "water demand" amounts.

The period of record also reflects conservation measures implemented by the City, recent system-wide improvements, and all additional water right acquisitions since 2003.

Diversions Records

Diversions records were obtained from the City's historical monthly and annual accounting reports submitted during the study periods to the following agencies: (1) the State Engineer's office; (2) FRICO; and 3) South Boulder – Coal Creek Ditch Company. Data for years 2000-2003 were derived from the Louisville's 2003 Raw Water Master Plan. Additionally, the City's internal accounting software records were used to supplement missing data. If there was discrepancy between the various databases, the lowest and most conservative recorded values were used in the analysis. Total diversions from the City's various water supply sources are listed in the table below for each month of the study period.

Table 2
City Louisville Historical Water Diversions
(acre-feet)

Water Year	Marshall Storage	Marshall Directs	Other SBC Water	C-BT	Windy Gap	Total
2000	1746	1022	2973	---	0	5741
2001	1940	6938	4514	521	0	13913
2002	645	0	2222	722	0	3589
2003	1179	1309	1422	256	0	4166
2004	1129	1660	1790	0	0	4579
2005	1613	1205	1998	30	0	4846
2006	968	2106	2008	66	0	5148
2007	1613	1317	1640	21	0	4591
2008	968	2190	2153	0	0	5311
2009	1779	280	1725	28	0	3812
2010	1779	1379	1050	80	0	4288
2011	1456	1658	1289	160	0	4563
2012	1203	0	2229	991	0	4423
2013	1492	742	1778	967	0	4979
2014	1497	1809	3880	637	0	7823
2015	1520	3501	1858	1031	0	7910
Ave	1408	1695	2158	367	0	5605

Note: Other SBC Water is referred to as Foreign Water when diverted in FRICO's facilities

The results indicate that diversions during the 2000-2015 study period are consistent with the trends reported in the earlier master plan reports (1992, 1998, and 2003), including the typical annual variations reflected in South Boulder Creek diversions and C-BT allocations. No significant changes from previous reports (and study periods) were identified during this study period.

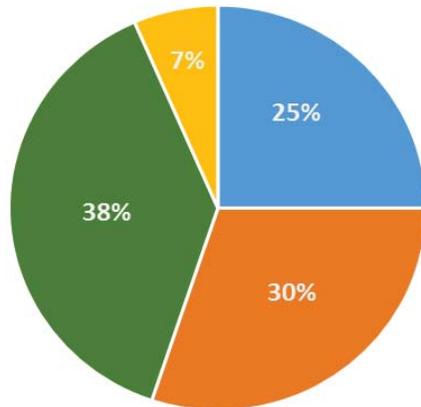
For future consideration, it is not anticipated that hydrological conditions will change significantly in the short term, but long term, climate change impacts may alter historical flow conditions – most notably in the timing of the runoff season.

Nevertheless, this historical trend analysis provided the baseline data to investigate the City's current water supplies (yields) and the foundation to assess existing and future city-wide operations.

Average Distribution of Supplies

The average annual allocation of supplies from each of the City's water sources during the 2000-2014 study period is illustrated in Figure 2.

Figure 2
Allocation of Raw Water Supplies



Percentages based on 2000-2015 average historical water diversions

■ Marshall Storage ■ Marshall Directs ■ Other SBC Water ■ C-BT

Historical Demands

Total treatment plant production at the HBWTP and SCWTP was summarized to develop a baseline monthly and annual demand for raw water during the study period. Production numbers varied widely and the historical data reflected conservation measures implemented by the City in times of supply shortages. Annual demands are shown in Table 2.

Table 3
City of Louisville Raw Water Demands
(acre-feet)

Month	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Total
2000	247	205	197	188	220	326	602	749	792	738	554	308	5126
2001	192	202	210	178	206	247	443	716	776	721	575	354	4820
2002	215	197	196	187	213	369	453	387	448	393	318	225	3601
2003	153	169	172	154	153	168	347	478	701	627	408	345	3875
2004	162	163	175	163	188	186	390	446	479	457	412	220	3441
2005	163	170	175	149	171	195	353	496	731	582	522	241	3948
2006	191	174	174	166	175	303	574	702	643	618	442	257	4419
2007	157	174	176	157	182	200	376	623	743	632	509	296	4225
2008	173	166	170	164	174	210	410	591	797	665	443	252	4215
2009	179	175	179	161	193	192	383	388	550	585	512	216	3713
2010	167	175	170	170	158	185	301	497	577	591	535	308	3834
2011	171	184	180	164	179	226	345	546	550	655	493	304	3997
2012	158	173	169	155	196	309	493	672	649	672	491	233	4370
2013	177	181	181	151	162	158	311	590	649	592	344	189	3685
2014	159	163	168	150	171	203	353	544	617	530	377	234	3669
2015	155	169	166	143	163	207	234	375	481	606	563	409	3671
Ave	176	177	179	163	181	230	398	550	636	604	469	274	4038

Note: The Coal Creek Golf Course average annual total demand is an additional 210 AF.

DROUGHT MANAGEMENT PLANNING

Design Drought Determination

Previous raw water master plans included an analysis of historical flow records on South Boulder Creek to identify past droughts with respect to duration, severity, and frequency of re-occurrence. The purpose of the analysis was to determine the type of drought (“design drought”) for which Louisville should use for planning and management strategies. From the design-drought analysis, the City’s water supplies and demands are compared to identify any water shortages. The amount of Louisville’s water supply during all years including a drought is commonly referred to as “firm yield” which is generally derived from the City’s more senior water rights. In previous water planning reports, the 24-month period from March-1963 to February-1965 was selected as the “design-drought” for the City’s future water supply planning.

These previous design drought analyses were reexamined for accuracy and to assess the feasibility of replacing the previous 1963-1965 design-drought with a more predictive period. The 2003 Raw Water Master Plan’s hydrological records were updated through 2015 and then used to determine the need for a new design-drought. The result of this re-examination was that the criteria for using the 1963-1965 drought period continues to be applicable and provide the most representative design period for City-wide drought planning.

To project drought impacts to the City, the 1960’s drought represents the unique set of circumstances and factors that most significantly affect the City’s raw water supply. The 2002 drought is the most significant drought year during the study period, but the one year duration allowed City-wide storage to substantially refill in 2003. Further, while the drought of 1952-1957 was more severe in terms of low streamflow records on South Boulder Creek, using the 1960’s drought-design period produces more significant drawdown in storage, and consequently, has a higher level of impact on developing and implementing drought management actions.

Therefore, in the case of Louisville, categorizing drought events only by its associated reoccurrence level (example: 1-in-50 years) has been determined to be inappropriate. A more important parameter with selection the proper design drought is the duration of the drought and its impacts on storage levels. The duration is an important because: (1) extended droughts generally do not occur frequently enough to justify the expense to protect against them in the future; (2) extended droughts are generally less severe in any given year but occur for longer periods, and (3) short-term (18 months or less) droughts do not fully impact City-wide storage for long periods and therefore have much less significant impacts on water operations. For Louisville, the 2-year duration of the 1960’s design-drought was selected because of its critical impacts on City storage levels.

The key factor in assessing drought actions for Louisville is associated with the drawdown of City-wide storage levels during the first two years of the drought. The City currently has a two-year storage buffer available for the design-drought periods. During the first year of the design drought, water storage levels are drawn below average end-of-water year (November 15th) recorded levels. During the second year, the City is reliant on its carry-over from the previous year and the firm yield amount of water supplied in the second year. If the storage drawdown rate is significantly higher than previous (typical) years during the first year of the drought, then the City must rely on its firm yield water supplies and,

simultaneously, implement management strategies to address drought conditions and reduce City-wide water demands throughout the second year.

For these reasons, the design drought for this analysis was selected as the 2-year, 1963-1965 hydrological period on South Boulder Creek. The results from this analysis indicate that the City has a firm yield approximately 6,500 AF annually. Firm yield sources include senior South Boulder Creek water rights, City-wide winter storage, Colorado-Big Thompson and Windy Gap Firming water supplies.

Implementing Drought Management Restrictions

A critical component to properly manage the City's water resources during drought periods is to identify the appropriate time to implement the Drought Plan. Implementing the drought plan too early results in supplies exceeding demands, negating the need for outdoor water restrictions. Contrarily, implementing restrictions too slowly results in drawing City-wide storage levels significantly below average, causing the City to reduce its carry-over supplies for subsequent use if drought conditions continue.

Drought management restrictions not only lower total City-wide water demands, they also lower the amount of revenue the City's water billing will generate during the period in which the restrictions are enforced. Therefore, imposing outdoor water restrictions too early in the spring has the potential to lower the City's annual water revenue. In contrast, imposing water restrictions too late in the spring may cause the City to have to purchase or lease water at an inflated cost to supplement supplies during droughts.



Sprinkler

The time of year in which drought management restriction are determined will depend on a variety of hydrological factors: winter snowpack within the South Boulder Creek, projected C-BT's west slope deliveries, Marshall Lake carry-over storage supplies, and the City's March-April water usage. At times snowpack levels are significantly below-average within the South Boulder Creek drainage (e.g. 2002), it is reasonable to anticipate water restrictions during April-October. However, at times when snowpack levels are only marginally below average, timing the drought management actions becomes more difficult. Historically, during times of low spring snowpack within the basin, the City relied more heavily and earlier on C-BT supplies prior to implementing outdoor watering restrictions. By doing so, the City prevented the need to impose drought restrictions too early in the summer irrigation season, but risked the need to implement the same restrictions later in the summer (July-August) or the following spring.

Outdoor watering restrictions need to be consistently implemented only at times they are determined to be season-long actions (as a minimum). Public perception is important to obtain compliance with watering restrictions, and inconsistency and/or "false alarms" associated with the timing of watering restrictions erodes public confidence and compliance with the City's drought rules and management. Generally, a high level of consistency can be achieved by assessing the City's water supplies by May 1 (or earlier) of each year. For example, during the first year of the design-drought period used in this study, watering restrictions would be unlikely. However, by May 1 of the second drought year, indicators

(snowpack/runoff predictions, Marshall Lake carry-over storage, recorded City demands, and projected C-BT deliveries) are anticipated to indicate the need and level of watering restrictions to match estimated water supplies.

CLIMATE CHANGE

Climate Change Modeling Review

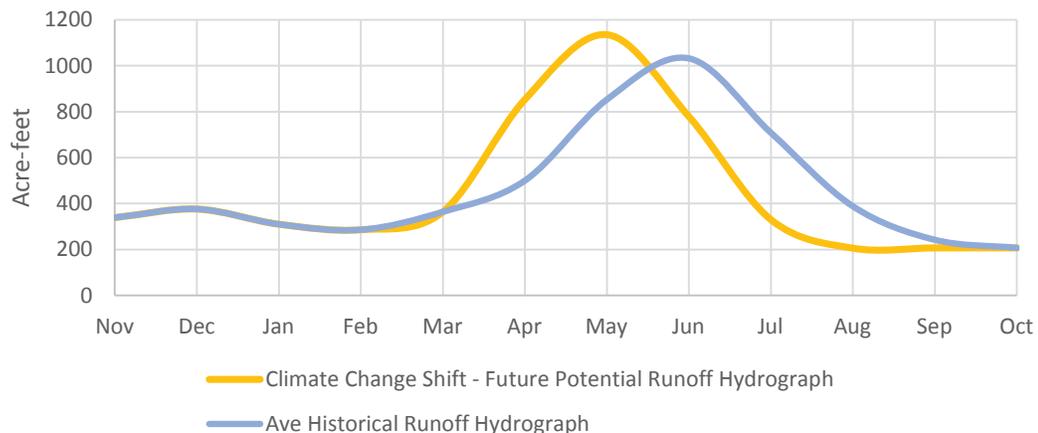
RBI has reviewed climate change modeling results that apply to the South Boulder Creek, Boulder Creek, and the South Platte River to assess potential long term impacts on the regional hydrology, water rights administration, and city water operations. Because of the wide variations and uncertainty in the modeling results, only general conclusions are offered below. As Louisville proceeds with future water resource management planning and as additional modeling results become refined, it is recommended that the City review these findings and make appropriated modifications as necessary.

Predicted Result – No. 1: Hydrology

The consensus of the models reviewed (Colorado Water Conservation Board, Boulder Climate Change Study (2009)), Joint Front Range Climate Change Vulnerability Study (2012), Colorado State University Technical Report 12-203(a) indicates the following:

- The runoff period on South Boulder Creek will gradually shift 20-45 days earlier from May 20 – June 22 to April 20 – May 22

Figure 3
Potential Runoff Timing Shift



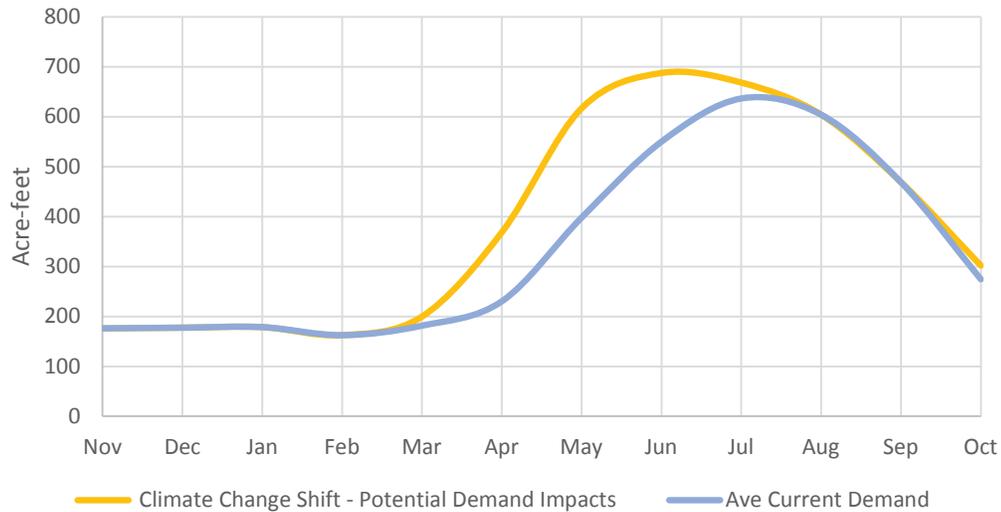
Other climate change assumptions also to be considered with runoff shift effects:

- Winter precipitation will increase 10-20%; summer precipitation will decrease 5-15%
- Annual runoff and stream flow volumes will be increased up to 10%
- Late summer stream flows will decrease 8-10 %
- Extreme climate conditions (droughts and floods) will increase in frequency and duration.

Predicted Result – No. 2: Water Demands

- City demands will shift from April – September to March – October

Figure 4
Potential City Demand Shift



Other climate change assumptions also to be considered with potential City demand shift effects:

- Annual irrigation demand volumes are projected to increase 5-15% without City imposed limitations
- Daily temperature increases will also increase daily evaporative reservoir losses at Marshall, Harper, McKay and Louisville Reservoirs, decreasing the potential annual yield released from each.

Predicted Result – No. 3: Operational Changes

- Marshall Reservoir will fill to capacity less frequently
- Junior water rights (foreign water) will be diverted more frequently in March and April
- Total peak runoff diversions will decrease
- Post-peak junior diversions will increase
- Senior rights will be used in June-October period rather than July- September
- Decreed monthly and annual volumetric limits will be reached more frequently for all of Louisville water rights, but most notably for the City's senior water rights
- Higher evaporative losses from the City's reservoirs.

Predicted Result - No. 4: Colorado River Compact

- More frequent and longer droughts are anticipated to reduce flows within the Colorado River basin

- River flows are reduced over time, and the associated storage levels within the basin are reduced in prolonged drought
- The likelihood of a Colorado River Compact call being placed on the Colorado River increases from “unlikely” to “possible” and some models show “probable”.
- A compact call will reduce or eliminate deliveries from C-BT and Windy Gap water supplies
- Specific impacts to the Louisville’s water supplies based on a Colorado River call would require specific system wide modeling for the City’s delivery system.

Watershed Protection

- Increased wildfire danger - increase frequency and duration
- Increased runoff due to extreme thunderstorm events
- Increased flash-flooding - local tributary capacities exceeded (Dowdy Hollow).

ALTERNATIVES

The City has adopted many of the recommendations provided in the 2003 Raw Water Management Plan. Consequently, an updated evaluation of the raw water supply system now includes these previous recommendations, and as result, the current baseline has been established against which to compare other future alternatives.

Current Water Supply and Demand

Louisville’s average annual demand currently is 4,250 af/year. The City’s firm yield is also currently estimated at 5,000 af/year. This is based on data for water treatment plant deliveries (demand) and the historical South Boulder Creek diversions and SWSP deliveries to SCWTP (supply). Therefore, based on the current level of demand, the City has sufficient supplies to meet average demands without imposing watering restrictions.

However, it is anticipated that future demands will increase; at time of this report the City’s build-out demand is somewhat uncertain. RBI was provided three likely demand levels at the time the City’s build-out occurs:

- 6,100 AF per year – (estimate provided by Louisville’s Water Efficiency Plan)
- 6,500 AF per year – (estimate provided by the draft Drought Management Plan)
- 7,120 AF per year – (previous Water Master Plan estimated build-out demand from 2003).

For each of these build-out demand levels, the difference between build-out demand and current water supply systems was analyzed to determine:

- The amount of water supply shortfall based on the future firm yield estimates
- The adequacy of current drought management practices to address these shortfalls
- List alternative actions the City may consider reducing overall City demand during drought periods

- List alternative actions the City may consider increasing its water rights portfolio and drought water supplies.

The results of this particular analysis are provided below. Costs for the alternatives are estimated, although the water markets’ volatility in northern Colorado is a consideration for any future water acquisition.

No Additional Action

Most City-wide planning documents include a “No Action” alternative addressing the current situation and impacts in the future. For this report, the recommendations listed in the 2003 Raw Water Management Report adopted or to be adopted by the City are included in the No Additional Action alternative (e.g. load shifting, obtain Windy Gap Firming supplies, and increase in SWSP capacity).

The No Additional Action alternative is used to quantify the impact of using only the current City’s supply system to meet future projected demands. No Additional Action, however, does not imply that the City will not decide to improve/repair/construct its water supply infrastructure, discontinue its water leasing to other local users, or make other management decisions that will improve the efficiency of the raw water supply system.

The No Additional Action does accurately reflect Louisville’s current water and storage supplies and the City’s sole reliance on the existing firm yield water supply during future droughts. Consequently, as build-out demands approach and potential shortfalls occur, City management may need to invoke drought management strategies earlier and more frequently if not combined with other alternatives.

The components of the No Additional Action alternative are listed below:

<u>Firm Yield</u>	<u>(AF/yr)</u>
Current:	5,000
Current with No Additional Action Alternative	6,500
<u>Demand</u>	
Current (average)	4,250
Build-out Scenario No. 1	6,100
Build-out Scenario No. 2	6,500
Build-out Scenario No. 3	7,120

The analysis shows that the City has sufficient water supplies to meet its near-term demands. To meet demands at the three build-out levels, the City must implement load-shifting from the HBWTP to SCWTP, enlarge the SWSP pipeline to SCWTP (to 7.2 cfs), and utilize water conservation measures to ensure that demands do not exceed firm yield supplies. These measures increase the yield to 6,500 AF per year, which meets the two lesser demand scenarios. Build-out #2 scenario was selected as the “Baseline Demand” to assess the City’s need to acquire additional water supplies and/or storage. If future build-out demands are less than the “Baseline Demand”, the City may avoid engaging in future water and/or storage acquisitions. Conversely, to meet the build-out #3 (7,120 AF) scenario, a water acquisition plan becomes necessary. Additionally, in the build-out #3 scenario, load-shifting, water conservation, and watering restrictions (10-15% reduction) may be implemented to lower City-wide

demands to firm yield water supply levels. Below is a summary of potential alternative projects that could be utilized to improve the City's water resources.

Additional Storage

The acquisition of additional storage can be achieved two ways: (1) Marshall Lake Division shares; and 2) build or acquire additional storage space. Marshall Lake Division water includes direct and storage water rights based on the City's pro rata ownership in the division. Therefore, storage in Marshall Lake is included with every purchased share. In past City water reports, acquired or constructed storage space was considered prohibitively expensive. However, while costs remain relatively expensive, alternatives exist that warrant further consideration:

Enlargement of Gross Reservoir: Add one-foot of elevation to the dam height and create an 800-1,000 AF "excess" pool. The estimated cost is \$4-8 million. Cooperation with Denver Water, City of Boulder, and City of Lafayette would be an integral part of obtaining approval for such additional storage space in Gross Reservoir. Modifications to the reservoir inlet are also anticipated. Given the current status of Denver Water's project to enlarge Gross Reservoir, this option has a low feasibility valuation.

Enlargement of Marshall Lake: Previous reviews conducted by the City indicated that increasing Marshall Lake may be problematic because of the resulting increased footprint of the reservoir area. Increasing the dam height may cause alluvial groundwater to build-up behind the dam to levels that would have detrimental effects to the adjacent landowners (landfill) and Highway 93. While further investigation is needed, these preliminary findings reduce the viability of this storage alternative.

Marshall Lake Forebay: Construct a 600 - 1,000 AF forebay storage facility adjacent to Marshall Lake for the purpose of diverting "spill water" and in-priority junior water rights from Marshall Lake to the forebay. The initial proposed site is south of the HBWTP, property presently owned by Boulder Open Space. The estimated cost is \$12-\$15 million.

Storage Partnerships with Surrounding Communities: Collaboratively investigate storage opportunities with entities such as District 6 water users and the Cities of Lafayette, Superior, Firestone and Erie. Periodic meetings with participants from each entity would be conducted to identify water needs (volumes, amounts, timing) and build the framework for a storage project within the South Boulder Creek/Boulder Creek/South Platte River drainages.

Dredge Marshall Lake: RBI is not aware of any updated storage-capacity curves for Marshall Lake. Without an updated curves, water elevation levels may no longer accurately represent storage volumes in the reservoir. Therefore, preferably in collaboration with FRICO, updated Marshall Lake storage capacity curves need to be developed to assess the current storage volume. Once the curves are developed, the City and FRICO can assess the amount of dredging that is needed to maximize the benefits versus the costs. It is anticipated that only a small portion of the overall storage is affected and this recovery would need to be combined with other options. A planning level cost for dredging is estimated at \$2 million.

Excess credit leasing/trade: Develop a leasing program or partnership program (water trade) to utilize excess reuse credits in non-drought years. The available reuse water would be used at times the City's water excess credit supplies exceeds its demands. The excess water could be leased to generate revenue or traded with other entities for use of CB-T units, additional South Boulder Creek water rights,

or additional Marshall Lake shares. Terms and conditions of future leases will be contingent upon future water market demands.

C-BT/Windy Gap Conveyance to HBWTP

Load-shifting has proven to be a valuable management tool to maximize Louisville's water supplies, most notably C-BT and Windy Gap sources. However, load-shifting is only from the HBWTP to SCWTP to fully utilize C-BT and Windy Gap supplies especially during winter operations. Under the current water delivery system, no C-BT/Windy Firming Gap water can be diverted to the HBWTP.

Historically, Marshall Lake has been the primary source of water for the HBWTP. Using storage at Marshall Lake to meet the plant's demands rather than C-BT/Windy Gap Firming supplies has proven a cost-effective strategy (no pumping costs) and reserves C-BT/Windy Gap Firming water for later use at the SCWTP to carry the City through the design-drought.

However, recent events have illustrated the potential need for a C-BT/Windy Gap Firming conveyance to the HBWTP. Events such as the 2013 flood effectively eliminated the use of Marshall Lake due to high turbidity levels. Additionally, in 2015, repairs to the Community Ditch required closing the head gate during the middle of the summer, thereby eliminating any additional diversions into Marshall Lake. Further, diversion from the Louisville Pipeline to the HBWTP were curtailed by repairs in 2015, again impacting water yields at Marshall Lake. Also, ongoing water quality issues have hindered the use of Louisville Reservoir in late summer, thereby increasing the treatment demands at the HBWTP. Under all of these conditions, preserving Marshall Lake water shifted to a higher priority as a result of limited storage supplies.

As a result of these events, a potential option has developed for a conveyance facility to deliver water from SWSP to the HBWTP to address times when storage becomes limiting in Marshall Reservoir. A full feasibility analysis is required to assess the design and cost of the pipeline, but estimates range from \$8-20 million.

Enlargement of Louisville Pipeline

The upper operation range of the pipeline is between 5.0 and 5.5 cfs. Expanding the capacity of the line to 10 cfs increases the average South Boulder Creek yield by 400 AF; during drought years, firm yield would increase approximately 200 AF.

This updated analysis confirms the results of the 2003 Raw Water Master Plan. Given the cost of C-BT units and the uncertainty of water right transfers, optimizing infrastructure to increase water yield is an economically viable alternative. The enlarged pipeline would be designed to divert water that currently bypasses the headgate. If additional capacity existed, higher flow rates could be diverted in accordance to the City's water right entitlements.

However, the marginal benefits associated with enlarging the Louisville Pipeline are lessened by the lack of storage and seasonal demand in average years. While higher rates of diversion are possible with an enlarged pipeline capacity, storage of such water occurs only if space is available in Marshall Lake or Harper Lake. If these two reservoirs are at full capacity, maximum pipeline diversions would be limited

(equal) to daily treatment plant demands. However, it is anticipated that City future demands will increase resulting in higher diversion occurring at the pipeline.

Nevertheless, additional pipeline capacity would allow the City to reserve its Marshall Lake and C-BT allocations, thereby increasing Louisville's average and the firm yield water supplies. Further, no water court action to enlarge the pipeline is required if the location of the head gate on South Boulder Creek does not substantially change (which is not anticipated). The estimated cost is \$10-15 million, which converts to \$25,000 - \$37,500 per AF of increased yield.

Another advantage of enlarging the pipeline involves operational maintenance issues. The pipeline was constructed in the 1950's making it part of the City's aging infrastructure that will see an increase in repairs and maintenance. Rather than replace and repair the existing pipeline - with no increased capacity benefits - the City could adopt a replacement program that enlarges the pipeline to allow for future increased flows. This option gives the City the ability to maintain and repair the pipeline and simultaneously gradually increase its capacity. It is expected that if no replacement of the pipeline is undertaken by the City, the Louisville Pipeline will incur significant expenses for extensive repairs and unplanned water supply interruptions. A condition assessment of the pipeline is planned for 2017 whereby an estimated life expectancy and will be used to develop a long range maintenance plan.

Water Acquisition

The planning criteria for future water acquisitions is four-fold: (1) identify the City's projected water demands; (2) identify the City's firm yield supply amount; (3) identify shortfalls between current supplies and future demands; and (4) purchase the "type" of water that best serves the long term interest of the City.

Water Rights Considered for Purchase

Colorado's water markets have various types of rights available for purchase, including agricultural ditch rights, C-BT units, and Marshall Division shares. (Groundwater, based on earlier studies, is not considered a viable alternative water source for Louisville. Deep groundwater supplies are limited and considered not sustainable based on current ground water supply and pumping costs). Selecting the "best-fit" for Louisville requires an analysis that determines which of these purchase options meets the City's long term needs at the most cost effective manner. This section describes three alternatives.

Agricultural Ditch Rights

Louisville currently has 31 agricultural ditch water rights involving 14 irrigation ditches that have been transferred through water court for use within the City's municipal system. These water rights consist of a combination of senior and junior water rights, with 80% of the City's water diverted during the months of May - July. Former agricultural rights comprise the "foreign" water classification and can be legally stored in City reservoirs or directly diverted to the treatment plants. Each of these water rights has specific terms and conditions that define the timing and amount of water the City is entitled.



Ditch Flume

Agricultural irrigation rights within the South Boulder Creek basin generally do not have associated storage rights, but rather are solely direct flow rights that can be diverted only during the summer's irrigation season. Therefore, the value of these rights is limited at times the City's current storage facilities reach full capacity. Under these circumstances, direct flow agricultural rights can only be diverted to the treatment plants, with flow rates limited by daily city demands rather than the larger legal entitlement. As a result, foreign water is less valuable to the City when compared with the other sources.

Current purchase costs for agricultural water rights within the South Boulder Creek basin average \$25,000 - 30,000/AF. However, transactions costs (engineering and legal) to transfer these rights from agricultural to municipal use in Colorado's water court averages \$150,000 (2016). Comparable costs vary

depending on the amount of water transferred in each water court application. Therefore, the economies of scale for the purchase and transaction of these rights would indicate that it would be beneficial to acquire a large amount of water prior to undertaking any water court action by the City.

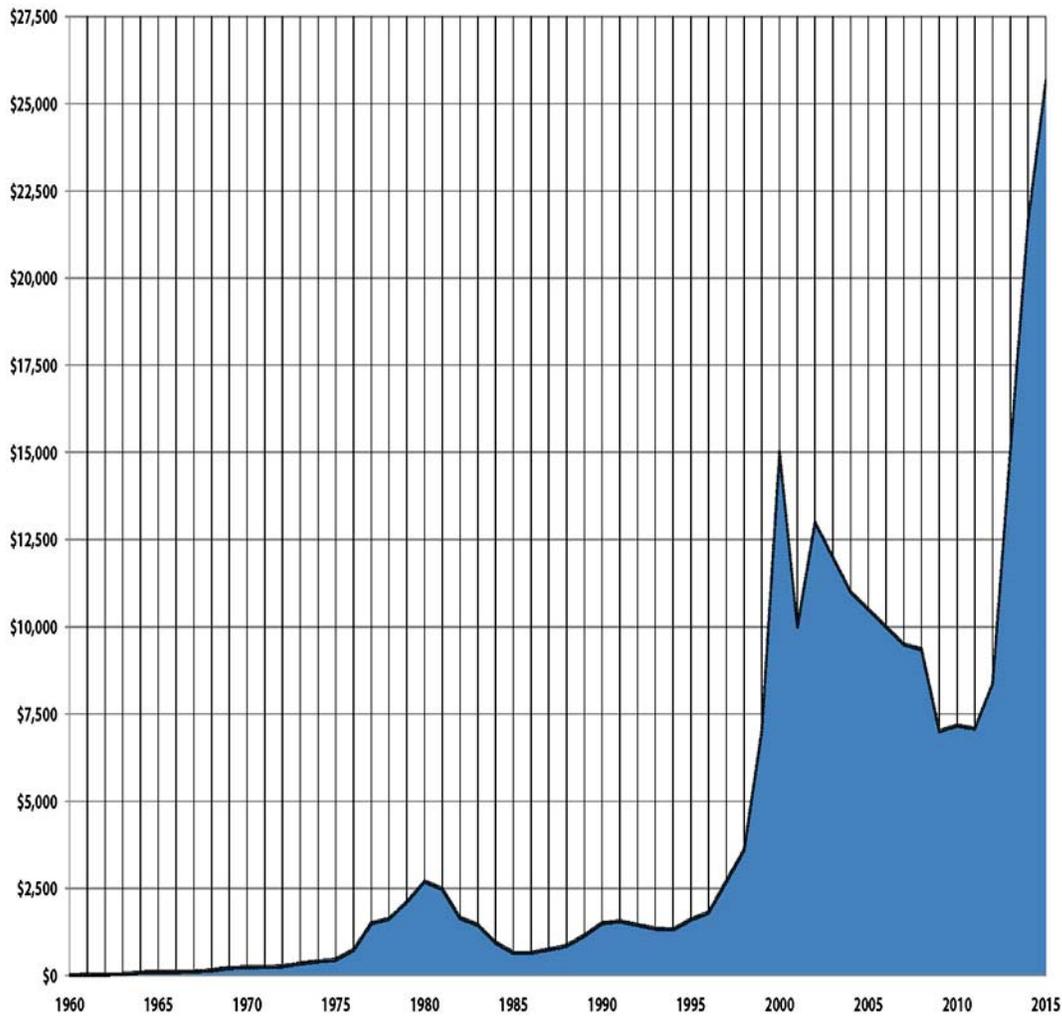
C-BT Units

The Colorado-Big Thompson Project diverts water from the headwaters of the Colorado River and delivers this water to various east slope reservoirs. Units of C-BT water can be bought and sold on the open market. Built originally during the 1930's to serve northern Colorado agricultural communities, C-BT units have been gradually acquired by municipal and energy interests and now make up the majority of usage.

Once collected on the west slope and diverted to NCWCD's east slope storage sites, C-BT units are not subject to Colorado's legal water allocation system and therefore offer more flexibility related to a unit's time of use. However, C-BT units are subject to a Colorado River Compact river call, if one was to occur in the future. On average, a single C-BT unit equals 0.7 AF of water which was used in assessing future C-BT amounts and needs. C-BT units can be used year-round because of the storage component associated with each unit. As a result, the demand for C-BT water has been increasing over the last ten years, especially due to the recent increased demand from municipal interests.

The price of C-BT water has increased dramatically since 2010. Currently, the price of C-BT water is at record levels (\$23,000-\$27,000 per unit). Delivery costs to the City are currently \$35/unit, not including the \$17/AF pumping costs. Slowing energy development may lower prices in the near-term, but municipal demand has remained constant. Historical transactions indicate that C-BT costs do not fluctuate during drought and flood periods. However, historical economic variations in housing development in northern Colorado have proven to significantly impact the C-BT market.

Figure 5
 Historical Representative Market Prices Per C-BT Acre-Foot Unit ⁽¹⁾



⁽¹⁾ District allottees of C-BT Project water may transfer and sell their respective acre-foot units to other parties within Northern Water boundaries. These transactions are subject to rules and regulations of the Board. The above table represents data gathered by voluntary action and serves as an indicator of how the price of C-BT Project water has fluctuated on the open market through the years. Actual transaction prices may vary.

Windy Gap Units

Louisville owns 9 units of the Windy Gap Firming Project. Future shares of Windy Gap Firming will be associated with any acquisition of C-BT units. However, Windy Gap units may be purchased without associated C-BT units. Because of the project’s junior water rights, Windy Gap Firming water cannot be diverted during low runoff years. Conversely, during wet periods, storage space in the project’s west slope reservoir, Granby Lake, is not available for Windy Gap water because it has a lower “storage priority” (as determined by NCWCD) than C-BT Project water.

Chimney Hollow Reservoir will increase the Windy Gap Firming project's annual firm yield to approximately 30,000 AF. This equates to approximately 600 AF entitled to Louisville Windy Gap water, with storage, would be considered drought protection for the City. It is also the most expensive water acquisition alternative at \$1.4 million per unit and an annual debt service charge of approximately \$25,000/year. Delivery charges for Windy Gap Firming water to the City is currently \$130/AF, plus pumping costs (\$17/AF).

The expected commencement date of the Windy Gap Firming Project - and the construction of Chimney Hollow Reservoir - is anticipated to be mid-2018.

At the time of this report, there is potential to acquire additional Windy Gap units as several project participants have reassessed their respective positions and looking to reduce their unit total.

Marshall Division Shares

Louisville owns 381.64 shares in FRICO's Marshall Lake Division; the total number of Marshall Division shares is 1,278.979 shares. The Marshall Division water rights consist of the Marshall Lake Division direct flow priorities and the Marshall Lake and McKay Reservoir storage rights.

The storage capability in Marshall Lake differentiates Marshall Lake Division rights from other agricultural water rights within the South Boulder Creek drainage basin. As a result, the Marshall Division shares provide a higher value to the City because of the Marshall Division right's storage component. Recent sales of Marshall Division shares have averaged \$23,000 - \$30,000 per share, with each share averaging 4 AF/year.

South Boulder and Coal Creek Ditch Shares

Louisville owns shares of South Boulder and Coal Creek shares. Similar to Marshall Division shares, these shares also consist of a storage and direct flow water rights. No recent sales of South Boulder and Coal Creek Ditch shares have occurred. However, it is anticipated that such rights have a value comparable (if not slightly cheaper) than Marshall Division shares. Only about 12% of the company's shares are still untransferred. Prior City engineering reports indicated that Louisville's ownership in the remaining shares could assist in protecting the City's current interest in the ditch company in addition to providing additional water supply to the City.

Gross Reservoir

During the past few years, Louisville has participated in negotiations with Denver Water (owner of Gross Reservoir) and the cities of Boulder and Lafayette to assess the feasibility of acquiring storage in Gross Reservoir. Denver Water is undergoing a re-permitting process for the reservoir and has identified 5,000 AF of additional storage space ("Environmental Pool") in Gross Reservoir. The purpose of Environmental Pool is to store water for later release to benefit the riparian habitat along South Boulder Creek and supplement streamflows when the Colorado Water Conservation Board's instream flow is the calling right on the creek (late summer). An early version of the proposal from the participants included storing Boulder, Lafayette's and Louisville's water in the newly available storage space each given a specific amount of storage space based on each city's ability to use its own water rights for environmental purposes.

The other parties have decreed water rights for storage in Gross Reservoir; Louisville has no such right. This lack of decreed storage space in Gross Reservoir has severely limited Louisville's participation. Without a water source to store in the reservoir, Louisville does not have the ability to meet the Environmental Pool requirements. Further, Boulder and Lafayette have the ability to release water from Gross Reservoir, shepherd the water through the instream flow reach of South Boulder Creek, and recapture the water for use in the municipal system. Louisville, however, has no ability to recapture the water from below the instream flow reach of South Boulder Creek. Louisville's water rights are diverted above the instream flow reach. Therefore, Louisville's ability to provide environmental enhancement and recapture Gross Reservoir releases for later City use has proven to be problematic.

The remaining parties continue to negotiate final terms (volume amounts and capital storage costs). Previously, Louisville has made proposals to the other parties to cost-share expenses associated with Gross Reservoir storage (since 2007), but without a legal water storage supply and identified, tangible environmental benefits, Louisville cannot meet the re-permitting requirements.

Amount of Water to Purchase

The amount of water required to adequately supply the City during the design-drought duration is contingent on: (1) risk assessment; (2) estimated costs; and (3) other adopted alternatives. Currently the City has an average demand of approximately 4,250 AF/year. Current firm yield supplies are estimated at 5,000 AF/year. Therefore, in the near-term planning period, Louisville's supply is sufficient to meet historical average demands. With load-shifting and water conservation management, the City's firm yield can be increased to 6,500 AF/year.

Based on review of historical records and City staff discussions, the 6,500 AF build-out scenario was used as the baseline annual demand for this report. At this level, the current firm yield supplies are adequate to meet the City's raw water demands with the implementation of the No Additional Action Alternative. However, due to inherent inefficiencies in the City's raw water transmission and distribution system, it is recommended that the City consider increasing its raw water supplies and/or storage to add 200 AF of C-BT units, Windy Gap units, or Marshall Division shares.

If the build-out demand is higher than 6,500 AF then additional water supplies and/or additional storage capacity will be needed. If the City water demand reaches the 7,120 AF/year level, there is a potential shortfall of 620 AF/yr at this build-out demand level.

To cover potential future water supply deficits which would result from demands exceeding 6,500 AF/year, the City will need additional water supply (from sources listed above) and/or storage acquisition. However, the following issues should also be considered with such purchases:

- C-BT purchases are limited to 400 units without increasing our contribution to Windy Gap
- Windy Gap Firming -- is considered best suited for drought protection rather than used to increase average annual supply because of high cost of acquisition and operation
- South Boulder Creek water rights include the uncertainty related to water court proceedings, in stream flows, and other administrative constraints
- In general, without additional storage, relatively more senior rights are required to address the shortfall. However, senior water rights comprise a smaller segment of the water market and, as a result, are relatively more expensive than other less senior (but more abundant) water rights.
- Marshall Lake shares include a storage component, increasing their value for City use

- Raw water supply needs are subject to change due to any of the following reasons: (1) future changes in water operations, (2) development of future cooperative agreements, (3) increase in city-wide storage capacity, (4) revised lower demand projections.

OTHER CONSIDERATIONS

General Cooperative Partnerships

Louisville has existing water/storage supply-related agreements with several entities including:

- Annual water supply leases - Asphalt Specialties, Three Leaf Farms
 - 2016 Lease Amount is 20 AF/yr
- Use of Louisville Pipeline for augmentation bypasses - Eldorado Springs
 - Approximately 10 AF during 2015 water year
- Use of Louisville Pipeline as an alternate point of diversion - City of Lafayette
 - Legal right, not contractual right

The Asphalt Specialties, Three Leaf Farm, and Eldorado Springs agreements are currently under review to assess the following:

- Policy strategies for renewing lease contracts (Asphalt and Three Leaf Farm);
 - Honor existing leases
 - Add new leases only on an annual basis - to the extent water is available.
- Louisville Pipeline Use -
 - Review and revise existing terms and conditions regarding the Facility Use Agreement with Eldorado Springs.

Future partnerships are anticipated regarding potential South Boulder basin local storage, basin-wide water right administration and management, and the possibility (and feasibility) of developing South Boulder Creek cooperative opportunities. Initial discussions with local entities are needed to develop the structure and process associated with these partnerships- with a primary focus on current basin-wide issues and future planning. Potential participants in these partnerships include water users in District 6 and, to the extent necessary, the users located on the lower St. Vrain and South Platte Rivers.

McKay Reservoir Conveyance

McKay Reservoir has the potential to supply replacement water for the City's return flow obligations, including Marshall Division shares, which could alleviate the need for such replacements to be made from Marshall Lake or the City's wastewater treatment plant. However, without an approved conveyance, such replacements from McKay Reservoir are not physically possible.

Negotiations with other water users to allow for water deliveries have been undertaken and are anticipated to continue. Discussions need to focus on Louisville's (and others) requirement to make return flow replacements. Recent rulings from similar water court proceedings indicate that future

similar requirements will be imposed on water right transfers associated with Marshall Lake Division shares. Current and projected terms of water supplies will create a higher demand for McKay Reservoir releases to supply municipal replacement obligations in time, place a location of the historical depletions (including Louisville's). This effectively eliminates the ability to deliver such return flows replacements from the City's wastewater treatment plant. Therefore, full compliance with Louisville's water court decrees will require a new conveyance structure. Final costs will depend on cost sharing arrangement with other parties involved and the type of engineering solutions selected to allow McKay Reservoir releases.

State of Colorado Water Plan

A recently published statewide water plan, developed by the Colorado Water Conservation Board, has indicated more cooperative operations are needed to address the projected shortfall of municipal water supplies in the state. Specifically, the plan identifies the need for increased flexibility to provide municipal water supplies during droughts. This flexibility can be achieved through cooperative agreements between water users within the basin, e.g. interruptible water supplies and water banking.

The state-wide plan recommends basin-wide cooperative planning among local water users. However, currently there is no formal planning forum for South Boulder Creek water right holders. Therefore, to implement the state plan, a District 6 water forum needs to be established with representation from the various District 6 water users. The purpose of the forum would be to discuss: (1) current water supplies/storage; (2) near-term basin-wide operations; (3) future water right operations; (4) watershed protection strategies, and (5) improved communication among the participants.

State of Colorado, Division of Water Resources, Water Rights Accounting Audit

Louisville began the audit process with the Colorado Division of Water Resources in 2014 to standardize the City's accounting forms, reporting procedures, and accounting process. This audit phase currently continues revisions to the accounting forms and procedures, with review and comment from the Division 1 Engineer, and the State Engineer's Office. It is anticipated that the audit process will be completed by December, 2017.

SUMMARY

The purpose of this report was to provide Louisville with an analysis related to its current and future water supply and use. Results indicate that the City has a firm yield of 6,500 AF/yr, with a current annual demand of 4,250 AF/yr. Three projected water demand levels were used to evaluate whether current water supplies are sufficient to meet the City's future growth. Results indicated that current raw water supplies were adequate to meet all but the highest demand level: 7,120 AF/yr.

To accurately appraise these results, several assumptions need to be identified when considering the outcomes described above:

- The modeling analysis assumed current storage capacities are an accurate representation of existing conditions.

- The Louisville Pipeline’s recent diversion rate is around 5.0 cfs. This was based on typical historical use of the pipeline rather than the original design flow rate of 7.7 cfs.
- To the extent water and storage/demand was available, it was assumed in the original modeling analysis that Louisville diverted water to its fullest legal entitlement. However, in practice, full efficiency in water diversions and deliveries is unrealistic. Historical diversion/delivery records clearly indicate that there were several occasions whereby water was available but not diverted. Therefore, appropriate modifications were made to reflect practical constraints limiting the City’s ability to divert at the highest rates, most notably regarding the two pipelines.
- To achieve the firm yield of 6,500 AF/yr with current water supplies it is anticipated that the City will need to increase its current level of water resource management, specifically daily administration and operations. This includes providing the capability to divert, deliver, and store all available water. As a result, higher daily management is required to achieve this level of water operations.
- Three future City-wide water demand levels were chosen for this analysis based on previous reports and estimates. Further refinement of these three City’s future build-out demand estimates is warranted to specifically target the amount of any water supply shortfall.

This report identifies a variety of water resource management alternatives designed to meet all future City water demands. However, the intent was not to present these individual alternatives mutually exclusive of each other. To the contrary, it is anticipated that a combination of alternatives will be adopted to achieve the desired goals. It is also anticipated changes and modifications will be necessary to update the information contained in this report. As the City develops into its build-out scenario in 2065, review of this document is warranted on 2-5 year basis, rather than the previous 10-year review.

Table 4
Summary of Capital Improvement Alternatives

Alternative	Increased Yield (AF)	Cost/AF	Difficulty (1-5)*	Total Cost
Enlarge SWSP Pipeline Capacity	800	\$10K - \$18K	3	\$1-3 Million
Marshall Lake Forebay	600 - 1000	\$20K - \$25K	5	\$12-25 Million
Dredge Marshall Lake	400 *	\$10K	3	\$4 Million
Water Purchase	250 *	\$22K - \$28K	5	\$4-7 Million
Gross Reservoir Storage	250 *	\$10K - \$20K	5+	\$2.5-5 Million

* 1-5 = easy to difficult transaction level

** Estimated yield unknown - only estimates provided

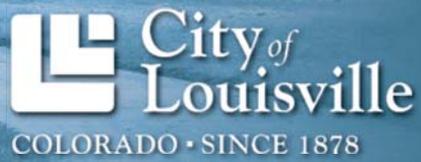
RECOMMENDATIONS

After considering the information gathered, the Louisville Staff has the following specific recommendations:

- Maintain the Design Drought period of 1963-1965
- Proceed with the SWSP Transmission Capacity Project
- Continue participation in the Windy Gap Firing Project
- Develop and implement load shift operational procedures
- Maintain and expand the Water Conservation Program
- Finalize McKay Reservoir negotiation
- Perform bathometric survey of Marshall Lake
- Utilize a build-out demand projection of 6,700 acre-feet for short term acquisition strategy
- Update the current Drought Management Plan
- Update the current City's water demand projections at Louisville's build-out use (Year 2065)
- Acquire up to 200 acre-feet of additional water supplies by purchasing C-BT units, and/or FRICO's Marshall Division shares, and/or South Boulder and Coal Creek Ditch shares.

Water Efficiency Plan

Prepared for



January 2015



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Water Efficiency Plan

Prepared for
City of Louisville

January 2015



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Acronyms and Abbreviations

AMI	advanced metering infrastructure
AMR	automated meter reading
AWWA	American Water Works Association
BMP	best management practice
C-BT	Colorado-Big Thompson
cfs	cubic feet per second
CIP	capital improvement plan
CIS	Customer Information System
City	City of Louisville
COMI	commercial-inside
COMO	commercial-outside
CRC	Center for ReSource Conservation
CTC	Colorado Technology Center
CWCB	Colorado Water Conservation Board
°F	degrees Fahrenheit
FRICO	Farmers Reservoir and Irrigation Company
gpcd	gallons per capita per day
HOA	homeowners association
IPPs	Identified Projects and Processes
IRRI	irrigation
IWA	International Water Association
LMC	Louisville Municipal Code
MF	multifamily
MG	million gallons
mgd	million gallons per day
M&I	municipal and industrial
PRSV	pre-rinse spray valve
RESI	residential-inside
RESO	residential-outside
SWSI	Statewide Water Supply Initiative
WTP	water treatment plant
WWTP	wastewater treatment plant

1 Profile Existing Water System

1.1 Overview and Purpose

The City of Louisville (City) is a Colorado municipality covering a service area of 8.50 square miles with an estimated population of 18,771 in 2014 (the population estimated from the 2010 US Census was 18,376). The City, incorporated in 1878, lies in Boulder County roughly 6 miles east of Boulder and 25 miles northwest of Denver. On average the City has 15.5 inches of rain and 275 days of sunshine a year. Mean monthly temperatures range from 29.5 degrees Fahrenheit (°F) in January to 72°F in July. At this time, the City owns, either alone or in conjunction with other governmental entities, approximately 1,700 acres of designated open space.

The residential size of the City is not likely to grow significantly, with an estimated population of 22,145 at full occupation. There is the potential for significant commercial and industrial growth at three main business centers: Centennial Valley, the Colorado Technology Center, and the Phillips 66 campus.

The City has two water treatment facilities with capacity to produce up to 12.1 million gallons per day (mgd) of potable water, potable water storage in the distribution system of 8.5 million gallons, 115 miles of finished water distribution system piping, and 6,784 service taps (as of 2013). The City has a treatment plant to reuse wastewater for irrigation; the treatment capacity of the reuse plant is 2 mgd, although the amount available for reuse varies depending on water rights operations.

1.2 Water Supply and Reliability

The City of Louisville obtains the majority of its water supply from South Boulder Creek through direct flow rights, storage rights, and exchanges. The City is also a participant in Northern Water's Colorado-Big Thompson (C-BT) project and the Windy Gap project. The City also obtains water from Boulder Creek through exchanges and has some storage and direct flow rights on Coal Creek. The City maintains water rights for the municipal water system as well as for agricultural uses. South Boulder Creek rights are transferred ditch rights so there is a lot of supply in the spring. Water supply in the winter is primarily from storage in Harper, Louisville, and Marshall Reservoirs. Summer water supply is augmented with C-BT water to meet peak demand. This augmentation is sometimes required due to algal blooms in the Louisville reservoir that cause water quality issues. A summary of storage water rights is provided in Table 1.

TABLE 1
City of Louisville Raw Water Storage Summary

Storage	Volume (acre-feet)	Notes
Harper Reservoir	715	—
Louisville Reservoir	210	—
Marshall Lake (Louisville Farmers Reservoir and Irrigation Company [FRICO] share, South Boulder and Coal Creek Storage Water, and Foreign Water)	1,020 to 2,540	—
Colorado-Big Thompson Storage	1,447	—
Total raw water storage capacity	3,392 to 4,912	Depending on FRICO share and Marshall

The *2003 Raw Water Master Plan Update* included an analysis of baseline yields of the City’s raw water supply system. Determining the water yield is a complex analysis that attempts to account for the details of water rights, including return flow obligations, legal priority of the water right, and conveyance. The master plan estimated the maximum divertible yields from South Boulder Creek range from 2,000 to 4,700 acre-feet each year, and nearly 80 percent of that amount is divertible only during the months of May through July. The Southern Water Supply Project (SWSP) includes C-BT and Windy Gap water. The average available C-BT yield is 1,447¹ acre-feet, with average Windy Gap yield assumed to be zero and a maximum of 900² acre-feet. The master plan included many assumed supply and demand scenarios; the *2003 Raw Water Master Plan* estimated that under future conditions the raw water supply system would provide a firm yield of 5,400 acre-feet. Deficits were predicted during drought years but the demand used in the scenarios was very high at 7,120 acre-feet.

The master plan was completed more than 10 years ago. Therefore, it is recommended the City update the plan to incorporate changes since 2003, including improvements to the raw water infrastructure, improved information on water supply from C-BT and Windy Gap, updated demand data, and resiliency to climate variability.

At this time, no major raw water acquisitions are planned by the City. Overall, there is limited raw water storage in the City’s system and additional storage would be beneficial. The total raw water storage capacity of 3,392 to 4,912 acre-feet is lower than the City’s forecasted annual water consumption (See Section 2.4 Demand Forecast). The storage system would provide approximately 6 months of water at forecasted baseline demands at the lower end of storage volume. The City is planning on continued efficient water use, but additional water rights acquisition will most likely be required.

1.3 Supply-Side Limitations and Future Needs

As mentioned above, the City has water rights along South Boulder Creek, a tributary to the South Platte River. In the most recent Statewide Water Supply Initiative (SWSI) completed in January 2011, the South Platte Basin is one of the basins facing a municipal and industrial (M&I) gap in 2050. The M&I gap is the difference between the projected municipal and industrial water demand and supplies from existing sources and supplies from Identified Projects and Processes (IPPs). The M&I gap for the South Platte Basin is projected to be 36,000 to 170,000 acre-feet per year, depending on the success rate of IPPs (see Table 5-19 of the January 2011 SWSI). The SWSI also noted that from “a regional perspective, the largest gaps occur in the Northern region, consistent with the high levels of current and future demands and urbanization in Boulder, Larimer, and Weld Counties.” There is also little to no unappropriated water remaining in the South Platte Basin. Based on the outlook from SWSI efficient water use will need to continue as a component of the City’s raw water master planning.

Limitations and future needs for the City’s raw water and treated water systems are summarized in Table 2.

TABLE 2
Summary of Supply Side Limitations and Future Needs

Limitation or Future Need	Comments on Limitation or Future Need	How is Limitation or Future Need Being Addressed
Raw water supply	The estimated firm yield from the City’s <i>2003 Raw Water Master Plan</i> was approximately 5,400 acre-feet. Drought years may result in a deficit.	Efficient water use especially during drought years will be required. Monitor growth of commercial properties that are not yet developed.

¹ 2,067 shares at 0.7 acre-feet/share firm yield.

² 9 shares at 100 acre-feet/share.

TABLE 2
Summary of Supply Side Limitations and Future Needs

Limitation or Future Need	Comments on Limitation or Future Need	How is Limitation or Future Need Being Addressed
Raw water storage	The total raw water storage capacity of 1,927 to 3,427 acre-feet is less than the City's current annual water consumption.	Efficient water use to minimize the need for additional raw water storage. Evaluate interconnects and storage projects to increase flexibility of raw water supply system.
Water treatment plant capacity	The City has two water treatment plants with a combined treatment capacity of 13.0 mgd (firm production capacity of approximately 12.1 mgd). There are some limitations on the source water that each plant is able to receive.	Efficient water use to eliminate need for capacity increases at the water treatment plants. Increase flexibility of moving raw water between the two treatment plants.
Wastewater treatment plant (WWTP) capacity to meet future regulations	Current rated WWTP capacity is 3.4 mgd, but future effluent regulations have the potential to impact the plant capacity.	In 2015, the City will start construction of the WWTP upgrades to meet redundancy, ammonia, and nutrient removal regulations. The plant capacity will also be decreased to 2.53 mgd to meet regulations.
Louisville pipeline	The pipeline reliably delivers 5.2 cfs (3.36 mgd) to the Howard Berry WTP and 4.9 cfs to the Louisville Reservoir. May operate at capacity during peak months depending on demand, the amount of water supplied from C-BT, and the amount of divertible water rights.	There are no projects planned to increase capacity of the Louisville pipeline. Blending of raw water sources will be required to meet future demands.
C-BT water pipeline	Pipeline capacity is 4.2 cfs (2.7 mgd). The City has other water supplies, but if more C-BT water was required to meet demand it would be difficult to meet the peak, especially in summer months.	SWSP upsizing is planned to occur within the next 10 years. Blending of raw water sources will be required to meet future demands.
Overall system reliability	Even with multiple water supply options and two treatment plants, the system is still vulnerable to unpredictable events. Interconnects would increase reliability.	The City has potable water interconnects with the City of Lafayette and is currently working on designing an interconnect with the Town of Superior.

Notes:

C-BT = Colorado-Big Thompson

cfs = cubic feet per second

mgd = million gallons per day

2 Water Demand and Historical Demand Management

2.1 Service Area Characteristics

2.1.1 Land Use

Title 17 of the Louisville Municipal Code (LMC) outlines the type of development allowed within the City; the most current plan is summarized in the *Louisville Comprehensive Plan* (May 7, 2013). A map of the City's service area and the 2012 land use map is shown in Figure 1. A summary of land use and built land use is provided in Table 3.

TABLE 3
Land Use Summary

Land Use	Land Percent of Total Land Area	Built Percent of Total Built Area
Agricultural	3.5	0.1
Entertainment	0.2	0.3
Hotel	0.4	1.5
Industrial	5.2	13.5
Large Format Retail	0.5	1.3
Mixed Use Commercial	0.7	1.4
Mobile Home	0.4	0.0
Multi-Tenant Retail	0.6	1.5
Office	3.4	9.1
Open Space/Parks	26.5	0.0
Public Service/Institutional	8.8	1.2
Residential Low Density	26.5	53.9
Residential Medium Density	1.3	3.7
Residential High Density	1.7	6.9
Single Tenant Retail	0.8	1.4
Stand Alone Restaurant	0.3	0.6
Vacant	19.1	3.6

Source: *City of Louisville Comprehensive Plan*, adopted May 7, 2013.

The highest percentages of land use in the City are residential low density and open space/parks, which together make up 53 percent of the total land area in the City. City parks, golf course, and open space total 3,335 acres. The highest percentage of built land use is from residential low density at 53.9 percent, followed by industrial (13.5 percent) and office (9.1 percent). The City estimates that residential land use areas will reach build out in 10 years and the remaining land use areas will take longer to develop.

Vacant or undeveloped land makes up 19.1 percent of the land use area in the City. There are several vacant areas that are eligible for development, although full development of these eligible areas depends on how much the market can actually support. Three large areas that are planned to have future growth for office and industrial uses include the Centennial Valley Business Park, the Colorado Technology Center (CTC), and the Phillips 66 campus. The areas are also designated as special districts by the City's *Comprehensive Plan*. It is important to include the potential impact of these areas on future water demand.

2.1.2 Customer Categories

Water usage is tracked for several customer categories (see Table 4). All customers have water meters and are billed monthly.

TABLE 4
Customer Categories

Category	Code	Description	Metered (Yes/No)	Revenue (Yes/No)
Metered Consumption				
City	CITY	Indoor and outdoor use at City facilities including parks, medians, recreation centers, pools, and golf course. The golf course can be irrigated with raw, reuse, or potable water.	Yes	No (current) ¹ Yes (future)
Residential-Inside	RESI	Single-family home, inside City limits, indoor and outdoor use.	Yes	Yes
Residential-Outside	RESO	Single-family home, outside City limits, indoor and outdoor use	Yes	Yes
Multifamily	MF	Multifamily residence, inside and outside City limits.	Yes	Yes
Commercial-Inside	COMI	Commercial, inside City limits, indoor and outdoor use.	Yes	Yes
Commercial-Outside	COMO	Commercial, outside City limits, indoor and outdoor use.	Yes	Yes
Irrigation	IRRI	Dedicated taps for outdoor water use for commercial and homeowners association (HOA) landscaping. Not all commercial users have dedicated irrigation taps for outdoor use.	Yes	Yes
Bulk Water	—	Water for construction use.	Yes	Yes

¹ The City is phasing in charging itself as a water customer. In 2014, the City is paying 25% of water costs, 50% in 2015, 75% in 2017, and full cost in 2017.

The City customer category is currently not billed and is authorized non-revenue water. However the City is phasing in charging itself as a water customer; in 2014, the City is paying 25% of water costs, 50% in 2015, 75% in 2017, and full cost in 2017. Not all commercial establishments have a separate irrigation tap for outdoor water use; the City code provides guidance on how large an area can be before a separate irrigation tap is required.

Construction water is authorized for use through bulk water usage permits and is tracked separately from the main customer categories in Table 4. Bulk water usage is metered using several bulk water meters in the system. The demand depends on the amount of construction each year. Bulk water usage is accounted for in the demand projections in Section 2.4, Demand Forecast. Other authorized uses that are not currently metered or billed (non-revenue) include distribution system flushing, firefighting, and street washing. A majority of water uses are metered and billed. However, the City does not have accurate estimates for this non-revenue water, but the volume of water for these purposes is usually small compared to the total water demand.

The City also has a reuse water system that currently irrigates City properties. Reuse water is used for irrigating Coal Creek Golf Course, Community Park, Louisville Sports Complex, Miner's Field, and the wastewater treatment plant. Reuse water usage is summarized in Section 2.2.2, Reuse Water.

2.2 Historical Water Usage

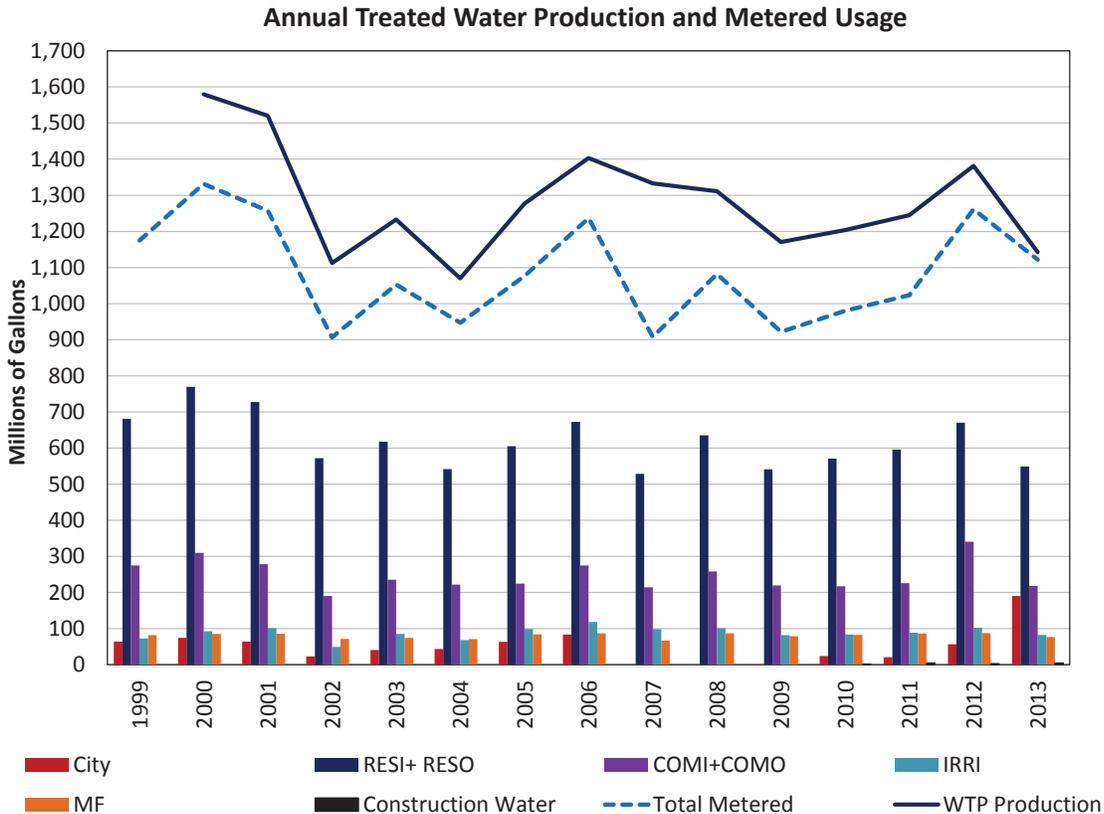
The summary of historical potable water use is summarized into authorized water use and water losses, as discussed in the following subsections.

2.2.1 Authorized Water Use

Authorized uses of water from the City of Louisville include metered water to customers, bulk water permits, and unmetered water for authorized purposes (flushing, firefighting, street washing, etc.). Water used for bulk permits is shown as an authorized use. There are no estimates of unmetered water for authorized purposes, so this water is not accounted for in the authorized use category in this evaluation. In the future, this relatively small number should be quantified so it can be accounted for as authorized unbilled usage. Annual water treatment plant production and authorized water usage for the City’s water customers from 1999 to 2013 is summarized in Figure 2.

Demand data prior to 2011 should be interpreted with caution for two main reasons: (1) a portion of the water meters in the system were misclassified in the billing system, and (2) upgrades to the billing system that improved water accounting were complete in 2010.

FIGURE 2
Annual Treated Water Production and Authorized (Metered) Consumption, 1999 to 2013



Water conservation programs and resources have been available from the City for several years. However, in 2002 there was a noticeable decrease in metered water consumption due to a severe drought that year. Since that time, citywide consumption has remained relatively stable, even as the population has increased.

A numerical summary of the last 5 years of authorized water use and water treatment plant production is provided in Table 5. Annual treated water production from 2009 to 2013 ranged from 1,170.81 to 1,381.41 million gallons (MG), or 3,593 to 4,239 acre-feet.

TABLE 5
Summary of Annual Authorized Water Use and Treated Water Production, 2009 to 2013

Year	City ¹	Residential (RESI+RESO)	Multifamily (MF)	Commercial (COMI+COMO)	Irrigation (IRRI)	Authorized ²	Total Authorized	Treated Water Production
2009	0.43	540.89	79.31	219.59	81.77	—	922.00	1170.81
2010	24.06	570.59	82.41	217.23	83.91	1.74	979.93	1203.65
2011	20.86	596.29	86.46	225.92	89.04	4.82	1023.37	1244.70
2012	56.87	670.06	87.61	340.66	102.60	3.30	1261.11	1381.41
2013	190.17	549.00	77.04	218.42	83.47	4.63	1121.52	1142.53

Notes:

¹ The accounting system for City water usage was not considered reliable until 2013.

² Authorized usage represents metered water for bulk water permits.

Units are in millions of gallons.

Analysis of water consumption per customer type shows that residential consumption consistently accounts for almost 50 percent or more of total consumption. Commercial is the second largest consumer, accounting for nearly 25 percent of total production. City, irrigation, and multifamily users make up the remaining 25 percent.

2.2.1.1 Water Losses

The difference in the total treated water production and authorized water use (Figure 3) is considered water loss. Water loss is divided into two categories: (1) real losses (leaks, overflows, unauthorized use, etc.), and (2) apparent losses (accounting and data collection errors). A certain amount of real water loss is inevitable, but utilities can minimize the amount of real water loss with maintenance and leak detection programs. The City of Louisville had apparent losses prior to 2012 when metered water was not being properly accounted for in the billing system. A summary of water loss for the last 5 years is provided in Table 6.

TABLE 6
Water Loss Summary, 2009-2013

Year	Total Authorized (MG)	Treated Water Production (MG)	Water Loss (% of Treated Water Production)
2009	922.00	1170.81	21.3%
2010	979.93	1203.65	18.6%
2011	1023.37	1244.70	18.9%
2012	1261.11	1381.41	8.8%
2013	1122.72	1142.53	1.8%

Note:

MG = million gallons

Prior to 2012, the average annual water loss was 19.8 percent. Water accounting improved in 2012 with the new CIS system and significantly decreased apparent water losses. In 2013, the calculated water loss was very low at 1.8 percent. The City will need to monitor water loss with the new CIS system to establish a baseline level that can be used to measure system improvement or deterioration.

2.2.1.2 Seasonal and Non-seasonal Demands

Indoor water use consists of water used for washing machines, dishwashers, showers, toilet flushing, cooking, and direct consumption. The majority of outdoor water use is assumed to be used for lawn

irrigation. Metered water demands for residential customers includes both indoor and outdoor uses. The irrigation account is water used for irrigation of landscaping at some commercial properties and homeowners associations (HOAs). A summary of season and non-seasonal metered usage is provided in Table 7 from 2013. The portion of water for seasonal and non-seasonal use for each category is used later in the demand forecast (Section 2.4, Demand Forecast).

TABLE 7
2013 Seasonal and Non-seasonal Metered Water Usage

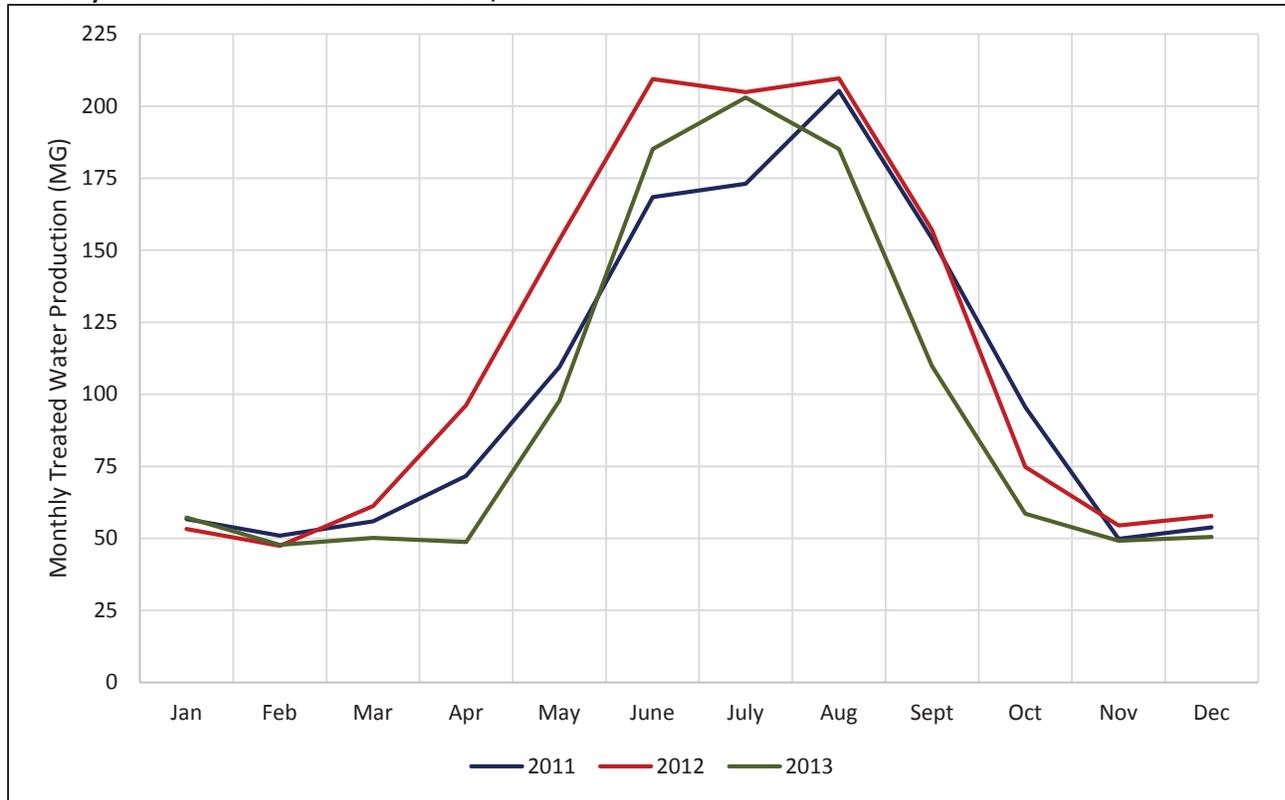
Customer Category	Seasonal (MG)	Non-seasonal (MG)	Seasonal (%)	Non-seasonal (%)
City	135.5	55.6	71%	29%
Commercial (inside City limits)	98.9	119.6	45%	55%
Multifamily	17.0	60.0	22%	78%
Residential (inside City limits)	247.5	299.6	45%	55%
Residential (outside City limits)	1.0	0.95	52%	48%
Irrigation	82.3	0	100%	0%

Note:
MG = million gallons

Monthly water treatment plant (WTP) production also increases from April through October (Figure 3). This is a seasonal pattern which correlates with an increase in consumption due to outdoor water use. Non-seasonal monthly WTP production from November to March is 50 MG per month on average.

Assuming that the non-seasonal production values represent indoor consumption year round, then the increase in WTP production between April and October is for outdoor use, which accounts for approximately 48 percent of total annual water consumption on average.

FIGURE 3
Monthly Water Treatment Plant Production, 2011 to 2013



2.2.1.3 Per Capita Water Usage

Per capita water use is a method of quantifying the volume of water used by a certain population. It can be calculated many ways and used to track efficiency over a large population or more specific customer categories. In this evaluation, the per capita water use is only calculated from 2010 to 2013 because the City's population was adjusted down 6.5 percent in the 2010 U.S. Census; population estimates prior to 2010 were inaccurate, and per capita values for these years would likely be underestimated. Per capita water use from 2010 to 2013 is summarized in Figure 4 and Table 8.

FIGURE 4
Per Capita Water Usage, 2010 to 2012

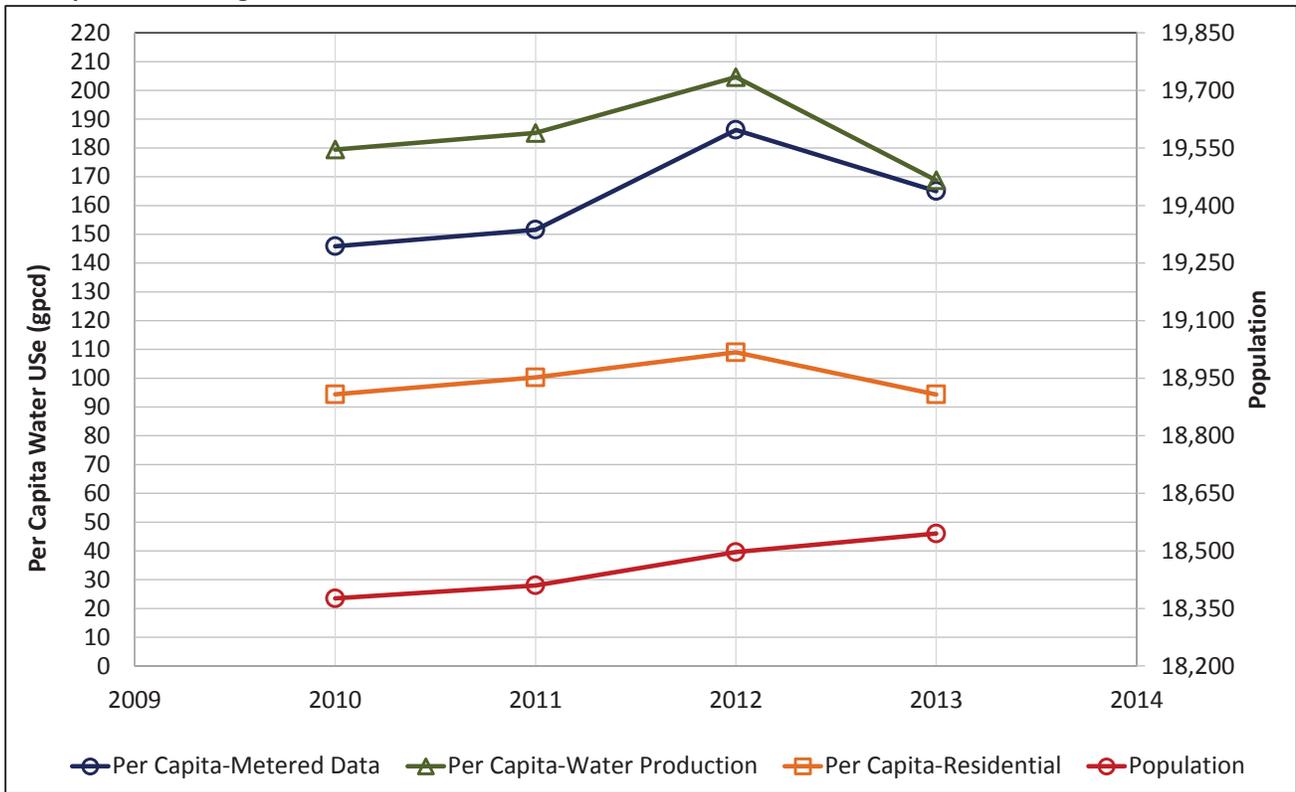


TABLE 8
Per Capita Water Use Summary

Year	Service Area Population ¹	Per Capita – Metered Use (gpcd)	Per Capita – Residential Use (gpcd) ²	Per Capita – Treated Water Production (gpcd)
2010	18,376	146.7	97.4	179.5
2011	18,410	151.6	101.6	185.2
2012	18,497	186.3	112.2	204.6
2013	18,545	165.0	92.3	168.8

Notes:

¹ Population from Water System Facilities Plan (July 2012). The City’s population according to the 2010 U.S. Census was 18,376.
gpcd = gallons per capita per day

Based on metered usage of all the City’ customer categories the per capita water usage of the service area population was an average of 162 gallons per capita per day (gpcd) from 2010-2013. An estimate of per capita usage of the residential population was an average of 101 gpcd from 2010 to 2013. This usage number represents the average amount of water required every day for each person in the RESI, RESO, and MF categories. These per capita values do not account for water use that is not metered as part of the billing system (for example, bulk water), real water loss, or apparent water loss. To capture the total amount of water per capita required at the entrance to the system, the water treatment plant production must be used in the calculation. The average per capita water required from the water treatment plant was 185 gpcd from 2010 to 2013.

2.2.2 Estimated Savings from Past Water Conservation

Efficient use of water has been a consistent message from the City's water utility for several years. Over the years, many factors contribute to decreasing per capita water demand, including City water conservation programs, improved metering, continued learned behavior from drought years, and public education. The estimate of savings from water conservation for the City of Louisville was based on the average per capita treated water production from 1999 to 2001 applied to the current 2013 population, and then comparing this result to the actual value from the 2011-to-2013 average. As stated previously, the 2010 U.S. Census adjusted the population to a lower value. Because an overestimate of population will result in underestimating per capita water use, the population was reverse forecasted from 2010 back to 1999 in order to estimate savings already achieved. Per capita values of treated water production were used instead of metered data because customers were not fully metered in 1999.

Based on a gradual increase of savings over time, the total water saved since 1999 is estimated to be 326 MG (1,001 acre-feet). This estimate was calculated as follows: The average per capita treated water production from 1999 to 2001 was estimated at 209 gpcd. When applied to the 2013 population of 18,584, this is an annual treated water production of 1,418 MG. The actual average from 2011 to 2013 was 1,092 MG. The actual treated water produced was approximately 326 MG (1,001 acre-feet) less than the estimated production based on past per capita values.

2.2.3 Reuse Water

The City's wastewater treatment plant (WWTP) has the capability to treat a portion of the water to be reused for irrigation. The reuse plant has a maximum treatment capacity of 2 mgd, but the actual amount of water available for reuse is limited by influent flow to the WWTP and water rights operations. Current average daily flow rates to the WWTP are 1.8 mgd. Reuse water is primarily used for irrigation at Coal Creek Golf Course, Community Park, Sports Complex, Miner's Field, and the WWTP. The average monthly total reuse water produced and the average production per day is summarized in Table 9 based on available historical data beginning in 1994.

TABLE 9
Summary of Reuse Water Production

Month	Average Daily Reuse Water Usage ¹ (mgd)	Average Total Reuse Water Usage (MG)
January	0.021	0.67
February	0.032	0.98
March	0.055	1.71
April	0.134	4.16
May	0.386	11.96
June	0.589	18.27
July	0.715	22.15
August	0.616	19.10
September	0.421	13.05
October	0.164	5.08
November	0.075	2.33
December	0.020	0.63

Notes:

¹ Usage based on a 10-year average for the Coal Creek Golf Course, a 5-year average for the WWTP and ball fields, and 50 acre-feet of demand for Community Park distributed across the irrigation months.

MG = million gallons

mgd = million gallons per day

Peak demand occurred in July 2013 at 0.715 mgd. Average production from the plant during warmer months from May through September is approximately 0.55 mgd. Total annual production from the plant in 2013 was approximately 100 MG

The City supports maximizing reusable system utilization and the potential exists to increase the supply of reuse water. Several water users have expressed interest in switching to reuse in place of potable water for their irrigation needs. During 2014, the City conducted a study evaluating reuse system expansion. It was found that with the current water rights usage, there is very little spare capacity in the reuse system because the City has a limited amount of reusable water. As a result of that study, Louisville decided to maximize utilization of the system by installing infrastructure that would enable several large users to transition from potable water to reuse supply. This transition is expected to occur within the next five years and is estimated to reduce Louisville's peak demand by 130,000 gpd, and seasonal demand by approximately 12 MG. More reusable water will become available as Windy Gap water starts to get used in the municipal system, which will be done once the Windy Gap Firming Project is completed. Currently, the Windy Gap supply is not utilized because of its unreliability and high cost. Several City parks still use potable water for irrigation, totaling about 66 MG per season. Expanding the reuse system to include additional large water users and City parks could increase the total reuse water used annually to approximately 120 MG. Over a period of 6 months, this would be equivalent to approximately 0.66 mgd.

2.3 Current Demand Management Activities

The City of Louisville is very committed to efficient water use and good environmental stewardship. The activities and programs described in this section were implemented by the City prior to 2014 and water savings have already been achieved from these efforts. A summary of water conservation activities is also provided later in the plan in Table 14, which also has a list of existing activities.

2.3.1 Foundational Activities

2.3.1.1 Water Conservation and Integrated Resources Planning

- The City implements an integrated resources planning approach that fully integrates water conservation into water supply planning processes.
- The City regularly updates their water supply master plan, capital improvement plan, and feasibility studies to ensure a diverse, robust, and resilient water supply.

2.3.1.2 Metering, Water Rates, and Billing Practices

- 100 percent of the City's customers are metered.
- Water use is tracked by various customer categories (residential, multifamily, commercial, irrigation, and city).
- There is monthly volumetric billing for all customers.
- Drive-by advanced metering infrastructure (AMI) with new meters were installed in 2010-2011.
- The City has a goal to replace meters every 10 years.
- Water rates are reviewed annually and adjustments are made to cover utility costs.
- There is an inclining block water rate structure to encourage efficient outdoor water use and other conservation-oriented structures are being considered.
- Commercial water tap fees are charged based on estimated annual demand, which could result in more water-efficient development.
- Separate irrigation meters are required for townhomes and multifamily developments with 5 or more units and are offered for commercial as optional.

2.3.1.3 System Efficiency (Water Loss Control and Pressure Management)

- Leak detection with listening equipment is performed every other year for a portion of the City.
- Water pipeline replacement program is part of the annual operations budget.
- Coal Creek Golf Course is irrigated with raw and reuse water to conserve treated water.
- Louisville Sports Complex and Community Park are irrigated with raw and reuse water to conserve treated water.

2.3.1.4 Monitoring and Evaluation

- Water consumption by large water users are regularly monitored as part of the industrial pretreatment program.
- Billing staff will occasionally flag monthly usage that exhibits an obvious variance from past data or shows a zero reading. The meters are then checked to determine if the reading was due to a broken meter or a leak.
- Water use by customer category is evaluated annually.

2.3.2 Targeted Technical Assistance and Incentives

2.3.2.1 Water Efficient Fixtures-Indoor

- Some City facilities have been upgraded with high efficiency fixtures and appliances, including City Hall (low-flow faucets, low-volume toilets) and the recreation center (low-flow shower heads, ultra-low flush urinals, and a pool cover).

2.3.2.2 Water Efficient Devices-Outdoor

- The vast majority of the City's irrigation systems controls are linked to a master Central Control Irrigation System (CCIS) that can be used to adjust watering times or turn off irrigation when there is a precipitation event.

2.3.2.3 Incentive Programs

- High-efficiency toilet rebate program.
- High-efficiency clothes washer rebate program.
- Drip irrigation system rebate towards cost of equipment.
- Buffalo grass turf rebate.

2.3.2.4 Efficient Water Use/Audits

- Outdoor irrigation efficiency audits offered by Center for ReSource Conservation (CRC) for residential and commercial customers.

2.3.3 Ordinances and Regulations

- Louisville Municipal Code (Title 17) established development Design Standards & Guidelines for commercial, industrial, and mixed use developments that incorporate low-water-use plants and efficient irrigation concepts into the landscape design of each development.
- Water waste ordinance, includes overspray limitations.
- Compliance with Colorado Department of Public Health and Environment's (CDPHE's) Regulation No. 84 limits runoff, ponding, and overspray from areas using reuse water.
- The City's Commercial Development Design Standards and Guidelines include a policy to conserve water by utilizing alternative means for maintaining a suitable landscape environment.
- The City's Open Space Division utilizes soil amendments and low-water plants.

- Louisville Municipal Code established development Design Standards & Guidelines for commercial, industrial, and mixed use developments. Subirrigation of turf areas, minimizing runoff, and use of local and drought-resistant plants are also incorporated in the guidelines.
- New state law phases in sale of only WaterSense³-labeled fixtures by 2016.
- City adopted the International Code Council (ICC) *2012 International Building Code* (2012 IBC) that requires new construction and remodels meet these standards.

2.3.4 Public Information and Education

The City communicates about water use and conservation with their customers using the following tools and methods:

- Regular newsletter distributed.
- Water conservation information available on the City's website.
- A Water Committee made up of City Council members; meeting agendas are posted and the public are welcome at any meeting. The purpose of the Committee is to provide information to the City Council about current City utility activities, projects, and water supply.
- Educational opportunities including school tours of water infrastructure facilities.
- Coordinated messaging with other local cities and Boulder County for consumer message and campaign development, particularly in times of drought.
- Instructional workshops for customers on relevant topics such as irrigation efficiency and management.
- Landscape design and maintenance workshops (through the Center for Resource Conservation [CRC]).

2.4 Demand Forecast

2.4.1 Summary

As part of the water efficiency planning process, three distinct water demand forecasts were prepared. First, a baseline demand forecast starting from 2014 and going out to 2032 was prepared. This baseline forecast did not include the impact of water conservation of any kind, even passive water savings, and was developed only to assess the adequacy of future supplies under reasonable worst-case conditions and to demonstrate the impact of anticipated efficiency improvements. Baseline treated water production in 2014 was estimated to be 1,417.7 MG and under the baseline forecast increased by 558.4 MG resulting in treated water production of 1,943.9 MG in 2032.

A second water demand forecast through 2032 includes the impact of passive efficiencies from Colorado legislation, and federal plumbing codes and standards. This forecast estimated that City water production would increase to 1,777.7 MG in 2032, or 166 MG *less* than they would be under the baseline forecast.

A third forecast was prepared that includes the anticipated impact the City's planned water efficiency program measures described in this plan. Under this forecast, water production increases to 1,707.0 MG in 2032. Compared with the original baseline forecast, if the elements of this plan are fully realized, then it is estimated that water demand at 2032 will be reduced by 236.9 MG (0.65 mgd) as result of passive and active water conservation measures in the City.

These forecasts form the core of the Water Efficiency Plan and are the forecasts on which estimated conservation savings are based.

³ WaterSense is a U.S. Environmental Protection Agency (EPA) partnership program that helps people save water with a product label and tips for saving water around the house. Products carrying the WaterSense label perform well, help save money, and encourage innovation in manufacturing.

2.4.1.1 Climate Variability Impact on Water Supply and Demand

Climate variability has the potential to impact water supply patterns and water demand. Recent climate forecasts indicate the potential for a future warming trend in the region. For example, in 2012 the Water Research Foundation completed a *Joint Front Range Climate Change Vulnerability Study*. All of the scenarios simulated as part of the study showed an increase in annual average temperature ranging from 1 degree to 6 degrees Fahrenheit for 2040. However, the annual percent change in precipitation ranged from -15 percent to +17 percent for 2040. While it is becoming more common to consider the impacts of climate variability on water supply planning the potential impact on water demands are less understood because of the variability of temperature and precipitation forecasts. Because recent water demands were used as the basis for forecasting future water demands, the demand forecasts in this plan already reflect some impact on water demand based on current climate conditions. A sensible approach to water demand forecasting is to regularly update demand projections based on actual current conditions.

The purpose and goal of this document was to prepare a water conservation plan to improve water efficiency under current supply and demand conditions. In order to plan for potential climate variability it is recommended the City complete an analysis of water supply and demand under climate change conditions to determine the adequacy of the City's water supply under a variety of future climate scenarios; such an effort was outside of the scope of work for this water conservation planning effort.

2.4.2 Forecast Development

As part of the preparation of the Water Efficiency Plan, three separate demand forecasts were prepared:

- Baseline forecast (without conservation)
- Passive savings forecast
- Passive and active savings forecast

The baseline forecasting method used historic demand patterns to establish the baseline per capita demand and then increase these demands with population out to 2032 as if the 2014 per capita water-use patterns continue without change to 2032. This is a standard approach to demand forecasting, but it does not take into account the expected impacts of water efficiency.

The second and third forecasts were developed using a more robust approach in which demands were separated out by water-use sector or customer category (for example, residential, commercial, irrigation, etc.), with seasonal and non-seasonal demands (outdoor and indoor) disaggregated for each category. Then a separate demand forecast out to 2032 was prepared for indoor and outdoor demand in each customer category. This allowed the impacts of specific water efficiency measures like high-efficiency toilets and clothes washers to be considered.

2.4.2.1 Population Planning Projections

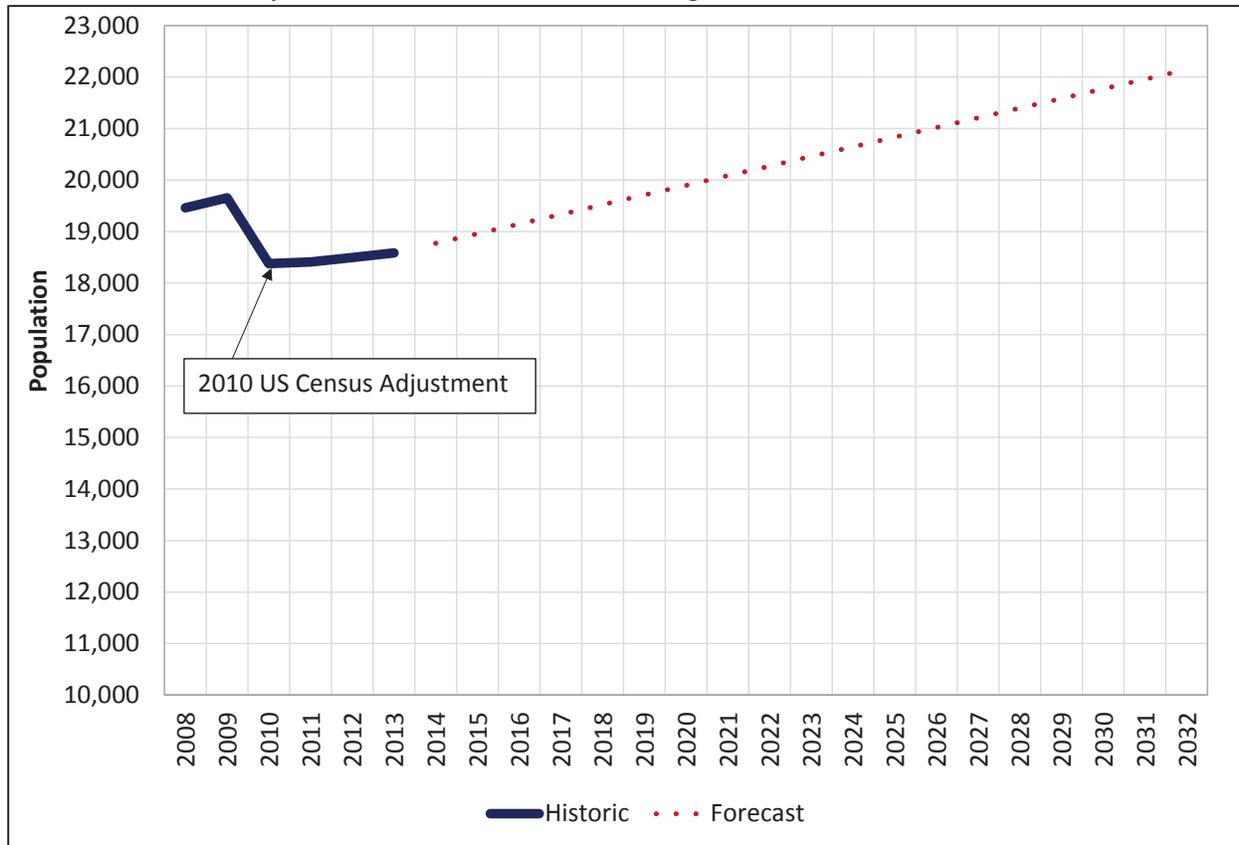
The population served with potable water by the City of Louisville in 2013 was approximately 18,584. Staff have indicated that the City plans to achieve a build out population of 22,145 by 2032. This suggests an average annual growth rate of between 0.75 to 1.0 percent per year. Table 10 shows the population forecast for Louisville from 2015 to 2032. The year 2032 was chosen as a demand forecasting horizon. These data are shown graphically in Figure 5.

TABLE 10

Population Growth Projections from 2008 through 2032

Year	Estimated Population	% Change from Previous Year	Data Source
2008	19,461	—	Water Facilities Master Plan (July 2012)
2009	19,656	1.00	Water Facilities Master Plan (July 2012)
2010	18,376	-6.51	2010 U.S. Census
2011	18,410	0.19	Water Facilities Master Plan (July 2012)
2012	18,497	0.47	Water Facilities Master Plan (July 2012)
2013	18,584	0.47	Water Facilities Master Plan (July 2012)
2014	18,771	1.01	Water Facilities Master Plan (July 2012)
2015	18,959	1.00	Water Facilities Master Plan (July 2012)
2016	19,146	0.99	Water Facilities Master Plan (July 2012)
2017	19,334	0.98	Water Facilities Master Plan (July 2012)
2018	19,521	0.97	Water Facilities Master Plan (July 2012)
2019	19,709	0.96	Water Facilities Master Plan (July 2012)
2020	19,896	0.95	Water Facilities Master Plan (July 2012)
2021	20,083	0.94	Water Facilities Master Plan (July 2012)
2022	20,271	0.93	Water Facilities Master Plan (July 2012)
2023	20,458	0.92	Water Facilities Master Plan (July 2012)
2024	20,646	0.92	Water Facilities Master Plan (July 2012)
2025	20,833	0.91	Water Facilities Master Plan (July 2012)
2026	21,020	0.90	Extrapolation
2027	21,208	0.89	Extrapolation
2028	21,395	0.88	Extrapolation
2029	21,583	0.88	Extrapolation
2030	21,770	0.87	Extrapolation
2031	21,958	0.86	Extrapolation
2032	22,145	0.85	Build-out population of 22,145 in 2032 from Joliette Woodson email 11/20/2013

FIGURE 5
Historic and Forecast Population of Louisville from 2008 through 2032



An analysis of recent water use data was performed to establish a starting point for the water demand forecasts. The minimum, maximum, and average water use for each customer category was calculated for each year from 2009 to 2013. These values were compared to the 2013 value. Engineering judgment was used to select the starting point for each customer category, guided by the intent to start the forecast at a value that was representative of recent demand but not too low or too high. A summary of the metered data for the last 5 years is shown in Table 11 (which was also provided Table 5), as well as a summary of the minimum, maximum, average, and baseline starting values.

TABLE 11
Summary of Annual Authorized Water Use and Treated Water Production, 2009 to 2013

Year	Population	City ¹	Residential (RESI+RESO)	Multifamily (MF)	Commercial (COMI+COMO)	Irrigation (IRRI)	Total Metered ²
2009	—	0.43	540.89	79.31	219.59	81.77	922.00
2010	18,376	24.06	570.59	82.41	217.23	83.91	984.20
2011	18,410	20.86	596.29	86.46	225.92	89.04	1,018.55
2012	18,497	56.87	670.06	87.61	340.66	102.60	1,257.81
2013	18,584	190.17	549.00	77.04	218.42	83.47	1,116.90
5-year min.	—	0.43	540.89	77.04	217.23	81.77	922.00
5-year max.	—	190.17	670.06	87.61	340.66	102.60	1,257.81

TABLE 11
Summary of Annual Authorized Water Use and Treated Water Production, 2009 to 2013

Year	Population	City ¹	Residential (RESI+RESO)	Multifamily (MF)	Commercial (COMI+COMO)	Irrigation (IRRI)	Total Metered ²
5-year avg.	—	58.48	585.37	82.57	244.36	89.12	1,059.89
Baseline Starting Point	18,584	190.17	585.37	82.57	244.36	89.12	1,191.69

Notes:

¹ Starting point for City’s baseline forecast is 2013 because the accounting system for City water usage was not considered reliable until 2013.

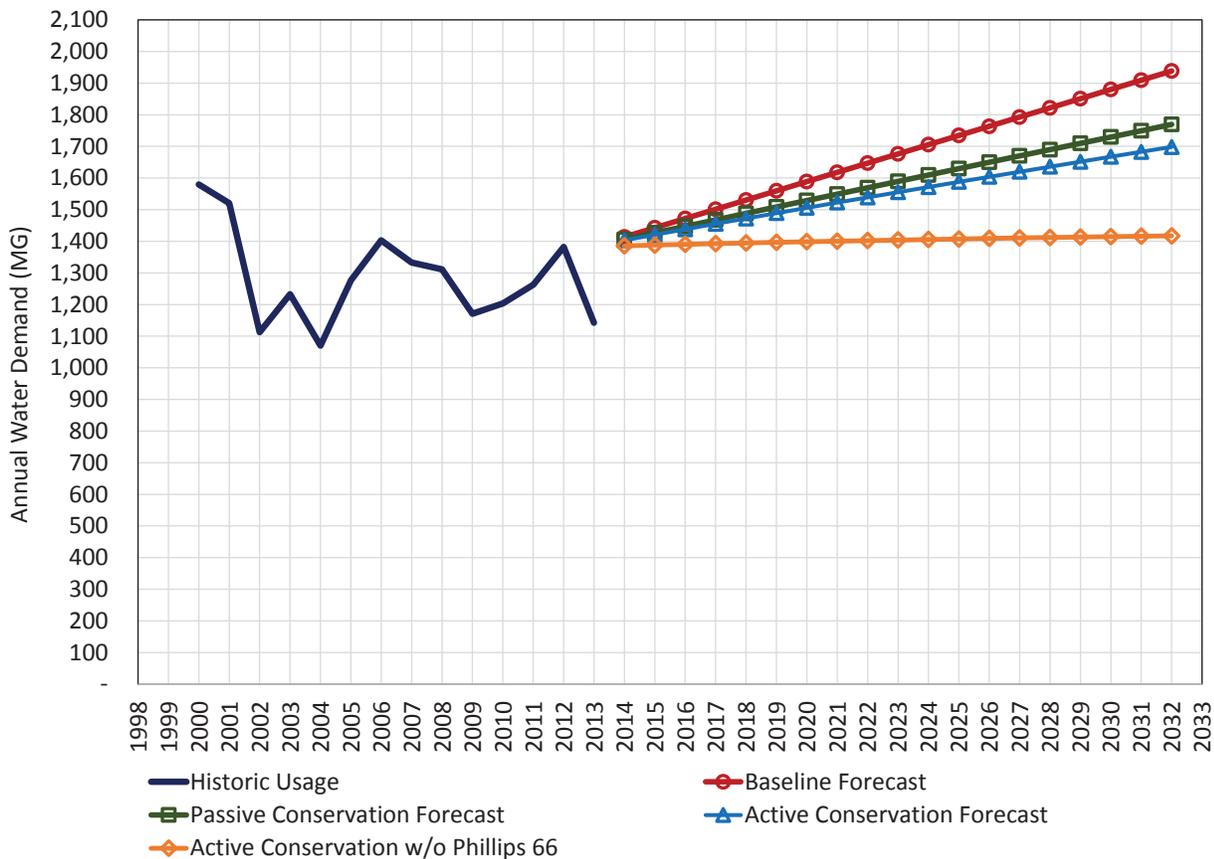
² Starting point for total metered water usage is the summation of the starting points of the individual categories.

Units are in millions of gallons.

The total metered water demand for the starting point of forecasting is 1,191.69 MG divided by the 2013 population of 18,584, resulting in a per capita metered usage of 176 gpcd. For the baseline forecast, this per capita value was applied to the forecasted population for each year out to 2032 to calculate the forecasted metered water demand for the baseline forecast.

The three forecasts (baseline, passive, passive and active) form the core of the Water Efficiency Plan and are the forecasts upon which estimated conservation savings are based. Each forecast shows demand starting in 2014 and going through the planning horizon of 2032 (18 years). The results are provided in Figure 6 and further described in more detail in the following sections.

FIGURE 6
Baseline, Passive, and Active Demand Forecasts through 2032



2.4.3 Baseline Forecast

Baseline demands were developed based on a combination of anticipated demographic and land use changes in the City of Louisville. In the baseline forecast all demands (indoor and outdoor) increase proportionally with the population at the current rate of usage. For the residential portion of the water demand, this assumes that new customers joining the system will use water identically to the current customer base. A major assumption for this baseline forecast is for the commercial users where it is assumed that water use at the Phillips 66 property will increase linearly from 0 MG in 2015 to 250 MG in 2032, when the site reaches full occupancy and usage potential.

The fundamental purpose of the baseline forecast is to assess the adequacy of future supplies under reasonable “worst case” conditions (that is, no water efficiency gains) and to demonstrate the anticipated impact of water efficiency in the City from both passive and active conservation programs.

Key assumptions in the baseline forecast are as follows:

- Baseline water use patterns and forecast starting point (Table 11)
- Population forecast (Table 10)
- Water use in all sectors both seasonal and non-seasonal increases proportionally with the population
- Annual bulk water usage of 4.8 MG that does not increase or decrease each year
- Outdoor water use impacts from temperature and precipitation in 2032 are similar to 2014

Baseline treated water production in 2014 was estimated to be 1,413.7 MG and increases by 525 MG, resulting in a total baseline demand of 1,938.4 MG (5,949.72 acre-feet) in 2032.

2.4.4 Passive Conservation Forecast

The passive conservation water demand forecast to 2032 includes the impact of anticipated passive efficiencies from State of Colorado legislation, and federal plumbing codes and standards on a sector-by-sector basis for both indoor and outdoor use. An example of a passive water conservation effort that is accounted for in this forecast would be the passing of Colorado Senate Bill 2014-103, which phases out the sale of low-efficiency lavatory faucets, showerheads, flushing urinals, and tank-type toilets.

Key assumptions in the passive conservation forecast are as follows:

- Baseline water use patterns and forecast starting point (Table 11)
- Population forecast (Table 10)
- Outdoor water use in all use categories increases proportionally with the population
- Outdoor water use impacts from temperature and precipitation in 2032 are similar to 2014
- 1 percent per year decrease in residential indoor (inside and outside City limits) per capita water use (from 47.1 gpcd in 2014 to 39.3 gpcd in 2032), which represents a continuing pattern of the past 15 years
- 1 percent per year decrease in multifamily residential indoor per capita water use, which represents a continuing pattern of the past 15 years
- 0.5 percent per year decrease in per capita commercial indoor (inside City limit) use from ongoing replacement of fixtures, appliances, and equipment and new State of Colorado legislation (Senate Bill 14-103) assuring high-efficiency plumbing in new construction
- 1 percent per year increase in per capita commercial indoor (outside City limit) water use to account for additional growth potential in the sector
- Annual construction water demand of 4.8 MG that does not increase or decrease each year

- Steady increase in water use at the Phillips 66 property from 0 gallons in 2014 to 250 MG at build-out in 2032
- Volume of water loss is held constant at 189 MG, which represents the average water loss from the last 5 years, thus reducing water loss from 15.8 percent in 2014 to 11.9 percent in 2032

The passive forecast estimates that City water demands will increase to 1,769.4 MG (5,430.00 acre-feet) in 2032 which is 169 MG less than the baseline forecast. The passive conservation forecast estimates a 28.3-percent increase in treated water demand over the next 18 years and suggests that more efficient fixtures and appliances could help reduce future demands in the City by 169 MG annually compared with the baseline forecast.

2.4.5 Active Conservation Forecast

The active conservation forecast includes the anticipated impact from the City's planned water efficiency program measures described in this plan (see Section 4, Selection of Water Efficiency Activities).

Key assumptions in the active conservation forecast are as follows:

- Baseline water use patterns and forecast starting point (Table 11)
- Population forecast (Table 10)
- Outdoor water use in all sectors increases proportionally with the population
- Outdoor water use impacts from temperature and precipitation in 2032 are similar to 2014
- 1 percent per year decrease in residential indoor (inside and outside City limits) per capita water use (from 47.1 gpcd in 2014 to 39.3 gpcd in 2032), which represents a continuing pattern of the past 15 years
- 0.5 percent per year decrease in residential outdoor water use (inside and outside City limits) due to the City's water conservation efforts and rate structure
- 1 percent per year decrease in multifamily residential indoor per capita water use, which represents a continuing pattern of the past 15 years
- 0.5 percent per year decrease in multifamily residential outdoor water use due to the City's water conservation efforts and rate structure
- 0.6 percent per year decrease in per capita commercial indoor (inside City limit) use from ongoing replacement of fixtures, appliances, and equipment and new State of Colorado legislation (Senate Bill 14-103) assuring high-efficiency plumbing in new construction
- 0.5 percent per year decrease in commercial outdoor water use (inside City limit) due to the City's water conservation efforts and rate structure
- 1 percent per year increase in commercial water use outside City limit to account for additional growth potential in the sector
- 0.25-percent decrease per year in city/municipal indoor water use from ongoing replacement of fixtures, appliances, and equipment and new Colorado legislation (Senate Bill 14-103)
- Annual construction water demand of 4.8 MG that does not increase or decrease each year
- Steady increase in water use at the Phillips 66 property from 0 gallons in 2014 to 250 MG at build-out in 2032
- Volume of water loss is held constant at 189 MG, which represents the average water loss from the last 5 years, thus reducing water loss from 15.8 percent in 2014 to 11.9 percent in 2032

Treated water demand for the active conservation forecast increases to 1,698.1 MG (5,211.2 acre-feet) in 2032. This is 241 MG less than the original baseline forecast and 71 MG less than the passive conservation forecast. If the elements of this plan are fully realized, then it is estimated that water demand at 2032 will be reduced by 241 MG (0.66 mgd) as result of passive and active water conservation measures.

If the assumption for water use at the Phillips 66 property is not included in the active forecast the active conservation forecast is 1,417.3 MG (4,349.6 acre-feet) in 2032.

2.4.6 Adequacy of Water Supply and Infrastructure

From the summary in Section 1.2, Water Supply Reliability, the *2003 Raw Water Master Plan* estimated that under future conditions the raw water supply system would provide a firm yield of 5,400 acre-feet. The master plan included many assumptions for supply and demand scenarios and should be updated to reflect more recent water supply and demand data. However, the estimate of firm yield illustrates the importance of water conservation for the City. A summary of the treated water demand forecasts and other infrastructure capacities is provided in Table 12.

TABLE 12

Annual Treated Water Demand Forecast Summary and Raw Water Supply

Forecast Scenario	Demand (MG)	Average Daily Demand (mgd)	Demand (acre-feet)	Notes
Baseline	1,938.4	5.3	5,949.7	—
Passive Conservation	1,769.4	4.9	5,430.0	—
Active Conservation	1,698.1	4.7	5,211.2	—
Active Conservation w/o Phillips 66 Demand	1,417.3	3.9	4,349.6	—
Raw Water Supply Firm Yield	—	—	5,400	Estimated from <i>2003 Raw Water Master Plan</i>

Notes:

MG = million gallons

mgd = million gallons per day

In this evaluation, the total demand for treated water ranges from 4,350 to 5,950 acre-feet depending on the level of water conservation and development. The estimated raw water supply firm yield is 5,400 acre-feet from the *2003 Raw Water Master Plan*. The firm yield value will be verified as part of the 2014 Raw Water Master Plan Update project to reflect more recent conditions. However, water conservation will be important for the City in the future to decrease the likelihood of having to find additional raw water sources.

The *2012 Water System Facilities Plan* also forecasted treated water demand for the City. The time frame to build-out and total population were similar to this evaluation. Treated water demands forecasted from the *2012 Water System Facilities Plan* range from 4.4 mgd to 5.1 mgd depending on the method of calculation. These endpoints are similar, but an exact comparison may not be possible. The forecast from this evaluation (Table 12) explicitly includes additional demand for the Philips 66 property and accounts for water loss. It is not clear if these were accounted for in the *2012 Water System Facilities Plan* forecast. Based on calculations from the projections, it seems the per capita metered usage from the *2012 Water System Facilities Plan* ranged from 198 to 225 gpcd, which is slightly higher than the baseline forecast value of 176 gpcd.

The firm water treatment plant production capacity is 12.1 mgd. The estimated volume of total treated water demand, when distributed over an entire year, represents the average demand. However, peak demands have to be met by the water treatment facilities and peak-day demands are usually used to size water treatment facilities. The City's *2012 Water System Facilities Plan* evaluated peak-day factors: The

average from 2003 to 2010 was 2.59 and the 75th percentile value was 2.68. To be slightly conservative, the 75th percentile factor was used for this evaluation. A summary of hypothetical peak-day demands for each forecast is summarized in Table 13 and shown graphically in Figure 7. Table 13 includes two peak-day scenarios: one where the peaking factor is applied to the average demand, and a second where the peaking factor is only applied to the metered demand and not to the portion of demand from construction water and estimated water loss.

The baseline forecast estimates a peak-day demand of 14.2 mgd which is greater than the treatment plant production capacity. The water treatment plant production capacity of 12.1 mgd is close to meeting the peak-day demand for the active conservation forecast of 12.6 mgd and meets the demand for the active conservation forecast without the Phillips 66 demand. Depending on development, the peak demands at build out will be close to the treatment plant capacity, but could be managed with water efficient measures targeted at decreasing peak demand.

TABLE 13
Estimated Peak-Day Demand and Water Treatment Plant Capacity

Forecast Scenario	Average Daily Demand (mgd)	Peaking Factor (PF)	Estimated Peak-Day Demand (mgd)	Estimated Peak-Day Demand w/ Selective PF ¹ (mgd)	Notes
Baseline	5.3	2.68	14.2	13.0	75th percentile peaking actor from 2012 Water System Facilities Plan
Passive Conservation	4.9	2.68	13.1	12.1	75th percentile peaking actor from 2012 Water System Facilities Plan
Active Conservation	4.7	2.68	12.6	11.6	75th percentile peaking actor from 2012 Water System Facilities Plan
Active Conservation w/o Phillips 66 Demand	3.9	2.68	10.5	9.7	75th percentile peaking actor from 2012 Water System Facilities Plan
Water Treatment Plant Production Capacity	—	—	12.1	12.1	WTP treatment capacity is 13.0 mgd which is approximately 12.1 mgd of water produced at the effluent.

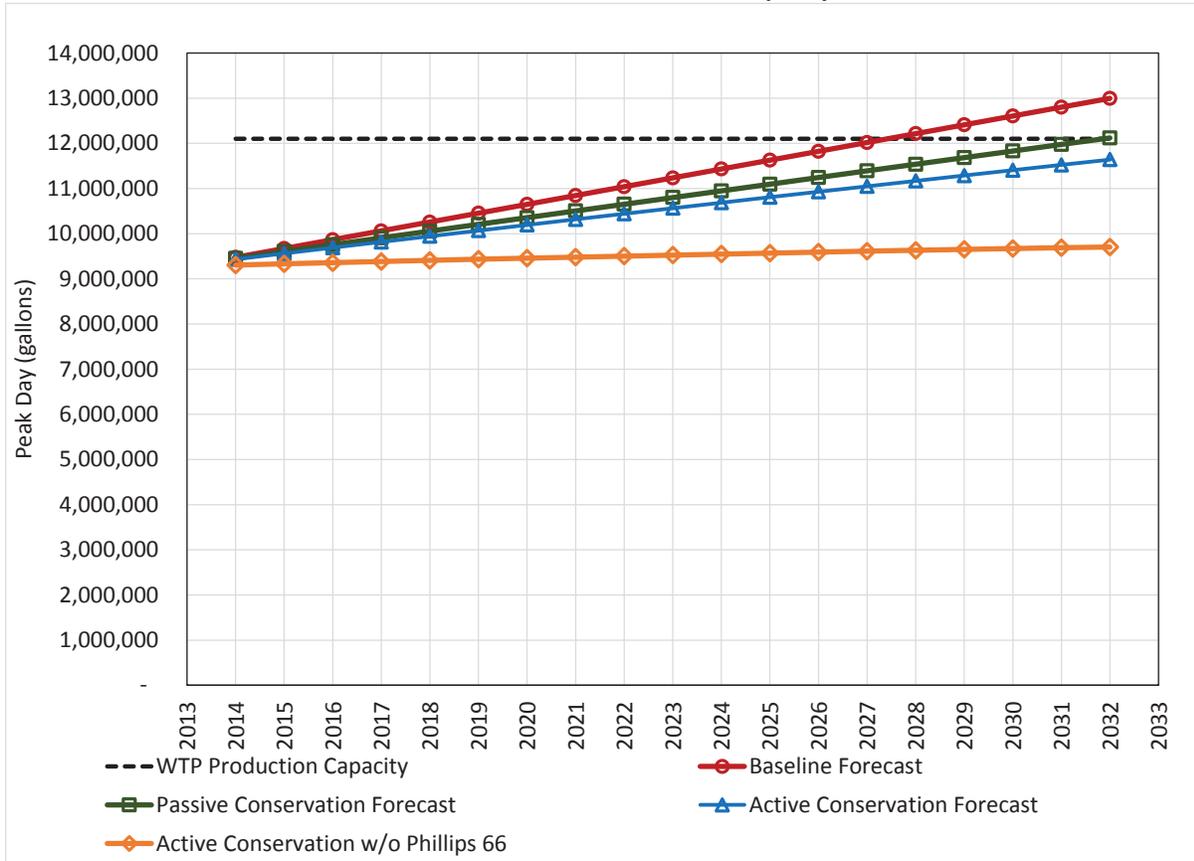
Note:

¹ Peaking factor (PF) selectively applied to metered demand only and not to the portion of demand from construction water and estimated water loss.

mgd = million gallons per day

FIGURE 7

Treated Water Demand Peak Forecast and Water Treatment Plant Capacity



3 Integrated Planning and Water Efficiency Benefits and Goals

3.1 Water Efficiency and Water Supply Planning

Integrated resources planning is implemented by the City in its planning process; new water supplies as well as water conservation are considered when planning to meet future demand. Over the years the City has expanded its water supply portfolio beyond South Boulder Creek to include C-BT and Windy Gap water. The City’s most recent water master plan, the *2012 Water System Facilities Plan*, incorporated water conservation into the demand forecasting methodology. Efficient water use by the City and its customers will be important to increasing the reliability of the supply when the City is built out. The summary table (Table 2) from Section 1.2, Water Supply and Reliability is repeated here.

TABLE 2 (REPEAT)
Supply Side Limitations and Future Needs Summary

Limitation or Future Need	Comments on Limitation or Future Need	How is Limitation or Future Need Being Addressed
Raw water supply	The estimated firm yield from the City’s <i>2003 Raw Water Master Plan</i> was approximately 5,400 acre-feet. Drought years may result in a deficit.	Efficient water use especially during drought years will be required. Monitor growth of commercial properties that are not yet developed.
Raw water storage	The total raw water storage capacity of 1,927 to 3,427 acre-feet is less than the City’s current annual water consumption.	Efficient water use to minimize the need for additional raw water storage. Evaluate interconnects and storage projects to increase flexibility of raw water supply system.
Water treatment plant capacity	The City has two water treatment plants with a combined treatment capacity of 13.0 mgd (firm production capacity of approximately 12.1 mgd). There are some limitations on the source water that each plant is able to receive.	Efficient water use to eliminate need for capacity increases at the water treatment plants. Increase flexibility of moving raw water between the two treatment plants.
Wastewater treatment plant (WWTP) capacity to meet future regulations	Current rated WWTP capacity is 3.4 mgd, but future effluent regulations have the potential to impact the plant capacity.	In 2015, the City will start construction of the WWTP upgrades to meet redundancy, ammonia, and nutrient removal regulations. The plant capacity will also be decreased to 2.53 mgd to meet regulations.
Louisville pipeline	The pipeline reliably delivers 5.2 cfs (3.36 mgd) to the Howard Berry WTP and 4.9 cfs to the Louisville Reservoir. May operate at capacity during peak months depending on demand, the amount of water supplied from C-BT, and the amount of divertible water rights.	There are no projects planned to increase capacity of the Louisville pipeline. Blending of raw water sources will be required to meet future demands.
C-BT water pipeline	Pipeline capacity is 4.2 cfs (2.7 mgd). The City has other water supplies, but if more C-BT water was required to meet demand it would be difficult to meet the peak, especially in summer months.	SWSP upsizing is planned to occur within the next 10 years. Blending of raw water sources will be required to meet future demands.

TABLE 2 (REPEAT)
Supply Side Limitations and Future Needs Summary

Limitation or Future Need	Comments on Limitation or Future Need	How is Limitation or Future Need Being Addressed
Overall system reliability	Even with multiple water supply options and two treatment plants, the system is still vulnerable to unpredictable events. Interconnects would increase reliability.	The City has potable water interconnects with the City of Lafayette and is currently working on designing an interconnect with the Town of Superior.

Notes:
 C-BT = Colorado-Big Thompson
 cfs = cubic feet per second
 mgd = million gallons per day

Efficient water use will need to be a consistent practice and message from the City in order to address future water supply needs. Maintaining the integration of efficient water use into raw water resource planning will be critical. Efficient water use to reduce peak-day demands may defer or eliminate the need for a new water treatment facility or a significant upgrade to the existing plants. Efficient water use also results in decreased flow to the wastewater treatment plant; while this helps limit costly expansion to the facility, it also lowers the amount of water available for reuse. The City’s operation and maintenance plan and capital improvement plan (CIP) are updated annually and will need to be integrated with results from water supply planning so the appropriate infrastructure is in place to achieve the goals.

3.2 Water Efficiency Goals

The end goals of the water efficiency plan were established with staff from the City’s Public Works Department, including the director, engineers, and operators. Goals were established based on the knowledge of the system limitations, areas needing improvement, and underutilized resources. A summary of the City’s water efficiency goals is provided in Table 14.

TABLE 14
Summary of Water Efficiency Goals

Goal	Approach	Measurement
Total annual water savings of 10 percent below baseline forecast at build out (600 acre-feet).	Water efficiency activities identified in this plan.	<ul style="list-style-type: none"> • Annual water treatment plant production • Per capita treated water production.
Account for all Water	Meter water that is currently authorized and unmetered for City use. Conduct AWWA Manual M36 water audit.	<ul style="list-style-type: none"> • Monthly water use be category with separate category for bulk water • Per capita metered • Per capita residential • Complete AWWA Manual M36 audit
Decreased peak-day demand at build-out to less than 13 mgd.	Water efficiency activities identified in this plan targeted to outdoor water use; increase reuse water distribution.	Daily water treatment plant production.

4 Selection of Water Efficiency Activities

4.1 Summary of Selection Process

The process of selecting water efficiency activities took place during several meetings with the City's Public Works staff. The conservation measures included in this plan were selected using the following process:

- City staff and the consulting team assembled a list of all water demand management measures implemented by the City in recent years.
- Consulting team consolidated and organized the list of activities and selected a number of additional measures for consideration. Only measures that were cost-effective best practices and that could be implemented effectively using existing staff resources were included.
- City staff and the consulting team met and reviewed all existing and potential measures and selected measures to carry through for inclusion in the plan.
- Consulting team prepared an internal Draft Water Efficiency Plan in July 2014.
- City staff reviewed the draft and modified conservation planning measures.
- The consulting team prepared a Draft Final Water Efficiency Plan in August 2014 for public review.
- Public comments collected during a 60-day review period from September 10, 2014 to November 10, 2014.
- A final draft was prepared in November 2014 for review by CWCB. There were no comments and the plan was approved by CWCB on January 6, 2015.

Many of the water efficiency activities that have already been implemented by the City will continue. Because of the established water efficiency goals (Table 13), many of the new water efficiency activities considered targeted efficient outdoor water use to decrease the peak demand.

The City of Louisville has a strong commitment to water conservation, but does not have a full-time water conservation coordinator. A key decision factor when considering water conservation programs for implementation were measures that can be effectively implemented using existing staff resources. The water conservation measures included in this plan have been selected to ensure effective ongoing water demand management in the City in the coming years and continuity with previous water conservation efforts.

The identification and screening of water efficiency activities is summarized in Table 15.

TABLE 15
City of Louisville
Identification and Screening of Water Efficiency Activities

Water Efficiency Activities	Existing Activity	Continue Activity	Implement New Activity	Other Notes
Foundational Activities				
<i>Staff</i>				
Water Conservation Coordinator	No		Yes	City will designate an existing staff member as the water conservation coordinator.
<i>Planning</i>				
Integrated Water Resources Plans	Yes	Yes		
Master Plans/Water Supply Plans	Yes	Yes		Update the 2003 Raw Water Master Plan
Capital Improvement Plans	Yes	Yes		Updated annually.
Feasibility Studies	Yes	Yes		
<i>Metering, Water Rates, Billing</i>				
Automatic Meter Reading Installation and Operations	Yes			Drive by AMR
Meter Replacement	Yes	Yes		
Meter Upgrades	Yes	No		Meters were updated in 2010-2011; do not need to be upgraded again in the time frame of this plan.
Volumetric Billing	Yes	Yes		
Monthly Meter Reading and Billing	Yes	Yes		
Track Water Use by Customer Categories	Yes	Yes	Yes	Add categories for bulk water and authorized use.
Inclining Block Rates	Yes	Yes	Yes	City plans to evaluate the rate structure to see if more efficiency can be encouraged for outdoor irrigation.
Separate Irrigation Meters-Commercial	Yes	Yes	Yes	This is currently optional; not all commercial users have a separate meter. Consider mandatory for large customers.
Separate Irrigation Meters-HOAs	Yes	Yes		
Separate Irrigation Meters-Multifamily with 5+ Units	Yes	Yes		
Water Budgets	No		No	A Water Rate Study was performed in 2013; feedback from the public did not support water budgets at this time.
Informational Water Budgets	No		Yes	
Tap Fees with Water Use Efficiency Incentives	Yes	Yes		
<i>System Efficiency</i>				
Leak Detection Repair Program	Yes	Yes		Performed every other year.
Water Line Replacement Program	Yes	Yes		Ongoing annual maintenance program.
System Wide Water Audit	No		Yes	Perform water audit in accordance with AWWA M36 method
Phreatophyte Eradication	Yes	Yes		
Reuse Water System	Yes	Yes		Increase distribution of reuse water.
<i>Monitoring and Evaluation</i>				
Monitor Water Use of Large Customers	Yes	Yes		Large water users are monitored as part of the Industrial Pretreatment Program.
Monitor Irregular Water Use	Yes	Yes		Billing software alerts if there is a deviation in water use.
Annual Water Use Tracking by Customer Category	Yes	Yes		
Update Conservation Plan	No		Yes	Every 5 to 7 years to meet CWCB requirements.
Report Water Use to CWCB	No		Yes	Annually
Targeted Technical Assistance				
<i>Water Efficient Fixtures-Indoor</i>				
Low Flow Faucets	Yes	Yes		Installed at City Hall, expand to other facilities in the future.
Low Volume Toilets	Yes	Yes		Installed at City Hall, expand to other facilities in the future.
Low Flow Shower Heads	Yes	No		Installed at Recreation Center. No need to continue except for replacement.
Ultra-Low Flush Urinals	Yes	Yes		Installed at City Hall, expand to other facilities in the future.
High Efficiency Pre-Rinse Spray Nozzles	No		Yes	
<i>Water Efficient Devices-Outdoor</i>				
Weather-Based Irrigation Controller - City Facilities	Yes	Yes		

TABLE 15

City of Louisville
Identification and Screening of Water Efficiency Activities

<i>Incentives</i>				
Weather-Based Irrigation Controller	No		Yes	
Soil Sensors	No	No		Technology still being developed.
HE Clothes Washer Rebate	Yes	No		Potential to phase this out based on new State requirements for water efficient fixtures.
Low Volume Toilet Rebate	Yes	No		Potential to phase this out based on new State requirements for water efficient fixtures.
Drip Irrigation System Rebate	Yes	No		Outdated rebate offer with limited participation.
Dishwasher Rebate	No		No	Industry standards are adequate, natural replacement will occur.
Garden in a Box	No		Yes	Offered through Center for ReSource Conservation (CRC)
Buffalo Grass Turf Rebate	Yes		Yes	
<i>Efficient Water Use (Audits)</i>				
Outdoor Water Audits-Residential	Yes	Yes		Offered through Center for ReSource Conservation (CRC)
Outdoor Water Audits-Commercial	Yes	Yes		Offered through Center for ReSource Conservation (CRC)
Indoor Water Audits-Commercial	No		Yes	Offered through Center for ReSource Conservation (CRC)
<i>Ordinances and Regulations</i>				
Water Waste Ordinance/Limit Overspray	Yes		Yes	
Soil Amendments	No	No		Significant time commitment to inspect and verify amendments.
Time of Day Watering Restrictions	No		Yes	These are currently voluntary unless the City is in a Stage 2 Drought or greater. Implement these hours at all times.
Low Water Plants in Medians of Right of Ways	Yes	Yes		
Landscape Training and Certification	No		No	Significant time commitment. Rely on State or regional effort.
Green Building Requirements	Yes	Yes		
Regulation 84 for Reuse Water	Yes	Yes		
Commerical Water Use-Car Wash Regulations	No		Yes	Reach out to local car washes.
Coordinated Message with Local Cities	Yes	Yes		Coordinated effort with local cities to establish Best Management Practices (BMPs)
<i>Education and Outreach</i>				
Newsletter	Yes	Yes		
City Water Conservation Website	Yes	Yes		
K-12 Teacher and Classroom Education Programs	Yes	Yes		Tours of water facilities
Customer Surveys	Yes	Yes		
Water Committee	Yes	Yes		Comprised of City Council members, meetings open to public.
Targeted Water Committees	Yes	Yes		When required, create a public member committee to provide input.
Landscape Design and Maintenance Workshops	Yes	Yes		

4.2 Demand Management Activities

4.2.1 Foundational Activities

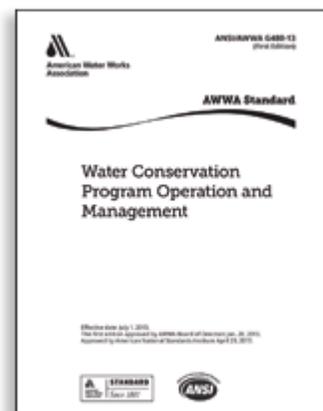
4.2.1.1 Water Conservation Staff

The City does not have a dedicated staff member for water conservation, but they will identify a conservation coordinator as one point of contact for customers with questions about water conservation. City staff members including Dmitry Tepo, Kurt Kowar, and Joliette Woodson will assist with plan implementation.

4.2.1.2 Water Conservation and Integrated Resources Planning

“Integrated resources planning (IRP) is a comprehensive planning effort that incorporates water conservation programs as another option for meeting future needs” (CWCB 2010 Best Practices Guidebook). The City of Louisville implements a rigorous, integrated resources planning approach that fully integrates water conservation into water supply planning processes as exemplified by previous master plans and the development and approval of this plan. The *2014 Louisville Water Efficiency Plan* is a CWCB-approved water conservation plan prepared by CH2M HILL and WaterDM that meets or exceeds all Colorado planning requirements (Attachment 3).

The City of Louisville practices integrated water resources planning through its other water resource planning efforts as well. The City regularly updates their water supply master plan, capital improvement plan, and feasibility studies including the anticipated impacts of water conservation to ensure a diverse, robust, and resilient water supply. It is recommended the City update the *2003 Raw Water Master Plan* with more recent information on water supply and demand.



4.2.1.3 Metering, Water Rates, and Billing Practices

The City of Louisville’s metering, water rates, and billing practices all adhere to established best practices for water conservation as described in the following paragraphs.

Metering and Testing. In the City, 100 percent of customers with taps are metered and all customers are billed volumetrically based on their actual consumption. The City is equipped with a drive-by automated meter reading (AMR) system. New meters were installed across the service area in 2010-2011. Water meters in Louisville are tested and replaced based on AWWA recommendations and protocols.

Billing Practices and Water Rates. Customers are billed monthly using an inclining block rate structure described in the Rate Structure – Landscape Efficiency paragraph below. Water rates are adjusted regularly to ensure sufficient revenue is collected to operate the water utility. The rates were most recently updated on May 1, 2014. These rates are included in Attachment 2. A revised conservation oriented rate structure which could include customer-specific water budgets is currently under consideration. The City will also bill volumetrically for sewer service, starting in 2015.

Customer Categorization. The City has classified all customers in the water system based on the type or category of building/account: residential, multifamily, commercial, irrigation, and city. Water use is regularly tracked by customer category. To improve water accounting it is recommended the City begin to track bulk water and authorized uses as categories.

Rate Structure – Landscape Efficiency. The most significant contributor to overall landscape efficiency in Louisville is the City’s increasing block rate water billing structure (Attachment 1) that results in significantly higher bills for customers who use more water. Most frequently this type of inclining block rate structure impacts customers that irrigate their landscape excessively, because it is designed to send a price signal to customers with abnormally high water use during any monthly billing period. The City’s increasing block rate structure provides financial incentive for customers adopt water wise landscaping practices. The City plans to maintain the efficiency components of the water rate structure and plans to evaluate strengthening the water rate structure, while encouraging healthy landscapes.



Separate Irrigation Meters (Submetering). Louisville requires separate irrigation services for certain townhome and multifamily developments. Currently separate irrigation meters are required for HOAs and multifamily residences with more than five units, and are optional for commercial buildings. This is an important best practice that provides better accounting of irrigation demands and offers the opportunity for utilizing landscape water budgets based on the irrigated area. The City will be considering implementing mandatory irrigation taps for large commercial customers as part of this plan.

Tap Fees. The City’s tap fee structure for new development includes efficiency incentives for builders/developers. This is an important best practice that ensures new customers join the City’s water system at a high level of water efficiency, eliminating the need for future retrofits. Under the existing tap fee structure, a lower tap fee can be secured by a builder/developer if proven water efficiency is incorporated into development plans.

Landscape Water Budgets. The City recently completed a rate study (*2013 Rate Evaluation*) where water budgets were considered as an alternative. A number of implementation concepts were considered including informational water budgets and a water budget-based rate structure. Currently, a new water rate structure has not been adopted and the Water Committee and the City Council will revisit changing this structure in late 2014. At a minimum, the City plans to implement informational water budget information that would be available on customer water bills for comparison to actual usage.

4.2.1.4 System Efficiency (Water Loss Control and Pressure Management)

The City of Louisville strives to maintain a high level of water system efficiency within its distribution system and seeks to reduce water loss whenever and wherever possible. The City works to control apparent losses with accurate metering and regular meter testing, as well as assuring that all customers are metered and billed for the water they use.

Leak Detection. The City implements a regular leak detection and repair program for the water system. A private leak detection contractor is hired every other year to bring listening equipment to the City and to search for water main leaks in designated areas of the City. If a leak is detected, the City has a repair crew ready to dig up the pipe and repair the leak.

Water Line Replacement. The City has implemented an ongoing program as part of regular annual maintenance to replace old water lines throughout the City. In this program, the City designates a specific section (or sections) of water lines for replacement each year. Through this process, the entire distribution network is



replaced and upgraded over time. The current focus of this program is the old downtown area, an area with the oldest pipes.

System Wide Water Audit. The City has identified some gaps in the collection of water use data, such as bulk water and authorized unmetered use. The City is planning to perform an annual implementation of the International Water Association (IWA)/AWWA water loss audit method described in AWWA Manual M36. This best practice is a method of auditing and water loss tracking for utilities where real and apparent losses are evaluated and quantified. Cost and benefit considerations are used to help decision makers select the most appropriate next steps for water loss control. Implementing an annual system water audit would be an important step forward for the City.

Reuse Water System. The City has a reuse water treatment plant. Maximizing the use of reuse water for irrigation will offset the demand on treated water. The City plans to increase use of reuse water; the golf course that was destroyed during the flood is being rebuilt with a reuse water distribution system for irrigation.

4.2.1.5 Monitoring and Evaluation

The City of Louisville implements the following monitoring and evaluation efforts to ensure water efficiency goals are met.

High-Demand Customers. The City monitors demands among the largest users in the system as part of the Industrial Pretreatment Program and investigates usage that deviates from previous patterns.

Irregular Water Use. The City's billing staff occasionally detect changes in total water use from month to month. The City is able to identify these locations and follow up to determine the cause of the increase or decrease. These fluctuations are usually due to an undetected water leak or a meter malfunction.

Annual Water Use. Total annual water use is evaluated annually for each customer category. Information from this data helps track the progress of efficient water use.

Evaluation. The City plans on updating the Water Efficiency Plan every 5 to 7 years to meet the CWCB requirements. They will also report water demand data annually to the CWCB under the rules established in House Bill 1051.

4.2.2 Targeted Technical Assistance and Incentives

4.2.2.1 Incentives

Rebate Programs. The City of Louisville currently offers four rebates to customers with an annual budget of approximately \$5,000 each year (see Table 16).

TABLE 16
City of Louisville 2014 Water Efficiency Rebate Offerings

Category	Rebate Amount	Rebate Maximum	Approved Product
Turf Type Buffalo Grass	\$0.25 per square foot	\$75.00	Type "609" Legacy
Drip Irrigation Systems	50% of purchase price	\$50.00	Any major manufacturer. Drip piping/connectors only; installation or "sprinkler" costs are <u>not</u> covered.
High-Efficiency Clothes Washers (1 rebate per customer every 5-year period)	\$75.00	\$75.00	Models meeting CEE Standards (see list)
Toilets (1 rebate per customer every 5-year period)	\$25.00 each (limit 3 per household)	\$75.00	Any 1.5- or 1.6-gallon water saver toilet

The City is phasing out the toilet and clothes washer rebates in the coming years because of Colorado's new state law mandating a transition to water efficient fixtures in the marketplace. Colorado's new state law, SB14-103, requires that as of September 1, 2016, all tank-type toilets, urinals, faucets, and showerheads sold in Colorado will meet the same flow requirements as WaterSense-labeled plumbing fixtures. This law is expected to advance indoor water efficiency in both the residential and nonresidential settings. New construction in Colorado after 2016 should come equipped with high-efficiency fixtures. Retrofits completed after 2016 will include high-efficiency toilets, showers, urinals, and faucets. Louisville understands that this new law significantly reduces the need for water providers to incent customers to purchase high-efficiency fixtures and is planning to phase out their rebate incentive program as a result. The City is also planning to phase out the drip irrigation system rebate because these parts are now readily available from local home improvement stores and there is very limited participation.

In support of shifting the focus of incentives to outdoor watering efficiency the City is planning to maintain the buffalo grass rebate and increase the amount to \$1.00 per square foot up to a maximum of \$150. The City will also consider adding a rebate for weather-based irrigation controllers up to \$100 each. It is important that controllers are WaterSense® labeled to be eligible for the rebate. Soil sensors are also an option but these are more complicated and technology is still improving.

Garden in a Box. The City would like to add the Garden in a Box offered by CRC to the incentive program for residential customers. The program will help educate the public on water efficient landscaping and make it easy for them to implement in their own yard.

4.2.2.2 Water Efficient Fixtures-Indoor

Water Efficient Fixtures – Indoor. In recent years the City has upgraded municipal buildings including City Hall with high efficiency fixtures and appliances. Low-flow faucets, low-volume toilets, and ultra-low-volume urinals are installed at City Hall. Low-flow shower heads were installed at the Recreation Center. This process will continue wherever practical.

High-Efficiency Pre-Rinse Spray Nozzles. To supplement indoor commercial water audits the City is also considering providing high-efficiency pre-rinse spray valves (PRSVs) to local restaurants and cafeterias. PRSVs (see photo to the right) are a proven effective method for reducing water and energy demands in the food service industry.



4.2.2.3 Water Efficient Devices-Outdoor

Central Irrigation System Control. All the City's irrigation systems can be controlled from a central irrigation control system. Watering can be adjusted based on rainfall. The City will evaluate if the central irrigation control system can be further improved through the inclusion of weather-based technology including rain sensors, soil sensors, and ET-based control.

Rain Sensors. The City's irrigation system is not yet linked to rain or soil moisture sensors. The City is considering this technology so the system will automatically adjust to real time rainfall conditions. The potential for reducing water use through implementation of these technologies will be explored.

4.2.2.4 Efficient Water Use – Audits

Indoor Commercial Water Audits. The City already contracts with CRC to conduct landscape irrigation audits. CRC now offers non-residential indoor audits as well and the City is considering adding this service starting in 2016.

Irrigation Efficiency Audits. Improving the efficiency of landscape irrigation and particularly the efficiency of automatic irrigation systems is and will continue to be an important focus of the City's conservation program. The City contracts annually with the CRC to offer free irrigation efficiency audits to interested residential and commercial customers. CRC provides Louisville with an inexpensive and effective way to

offer effective water conservation programs targeted at the areas of greatest need. CRC audits typically include:

- Evaluation of irrigation system performance
- Adjustment of heads to correct for over-spray
- Discussion of appropriate irrigation scheduling with the customer
- Inspection of rain sensors (if installed)

4.2.3 Ordinances and Regulations

Water Waste Ordinance. The City has an approved water waste ordinance that is enacted during times of drought. As part of this ordinance, the City can mandate time-of-day watering restrictions when necessary and has the authority to issue fines and penalties for overspray, wasteful irrigation practices, and time of day violations.

Watering Ordinance. Except in times of drought the City does not have mandatory watering times in place for customers. The City could implement mandatory watering hours during a time of drought as outlined in the *2013 Drought Management Plan*.

Green Building Code. Effective March 31, 2014, the City of Louisville adopted the 2012 International Building Code (2102 IBC).

Landscape Regulations. Louisville's commercial landscape regulations help ensure that new landscapes in the City are water efficient. The CDPHE's Regulation No. 84 prohibits excess runoff from areas irrigating with reuse water.

Regulation No. 84 – Reclaimed Water Control Regulation. The City's reuse water system complies with the Regulation No. 84 that includes requirements for irrigation efficiency to minimize overspray, ponding, and runoff of reuse water.

Soil Amendment Requirements. The City's Open Space Division utilizes soil amendments and low-water plants, but there are no plans to expand the soil requirement to others because the required inspection to verify the requirements is too labor-intensive for the City's current staff.

Commercial Car Wash Regulations. The City is considering reaching out to local car washes to work with them to implement regulations to increase water efficiency. Some of the measures could include recycling of water for new facilities or retrofitting devices for existing facilities to increase water efficiency.

4.2.4 Information and Education

The City encourages the adoption of water wise landscaping practices and efficient irrigation through customer education and information offerings including bill stuffers, brochures, and the City's web site.

Available Information. The City's web site had information on water conservation, water rates, and the City's incentive programs.

Communication. The City distributes a newsletter via mail to inform customers of relevant information for efficient water use and notify customers of upcoming workshops.

Education. The City gives tours of the water facilities for educational purposes. The City also offers instructional workshops for customers on relevant topics such as irrigation efficiency and management.

Water Committee. The City has a Water Committee that is made up of City Council members. They meet two to three times a year to discuss water related issues the City is facing. These meetings are open to the public. Targeted water committees are formed when needed to address specific topics. These committees can be a combination of Council members and the public.

5 Implementation and Monitoring Plan

5.1 Implementation Plan

Many of the programs that the City currently has to encourage efficient water use will continue. A summary of the activities planned for implementation is provided in Table 17. A list of estimated annual costs is provided in Table 18 for planning purposes.

The City plans to implement the following 11 new activities in the next several years:

- Identify a single person as the water conservation coordinator for the City
- Provide customers with theoretical informational water budgets on the monthly bill for comparison to actual use or implement a conservation-oriented water rate structure
- Perform a system-wide water audit in conformance with AWWA Manual M36
- Update this Water Efficiency Plan every 5 to 7 years
- Report water use to CWCB to meet State requirements
- Distribute high-efficiency spray nozzles to local restaurants
- Evaluate the installation of weather-based irrigation controllers for the City's irrigation systems
- Add weather-based irrigation controller rebate for customers
- Add Garden in a Box (offered by CRC) to the incentives for local residential customers
- Add indoor water audits for commercial customers (offered by CRC)
- Evaluate adding mandatory time-of-day (or day-of-week) watering restrictions even when not in a drought
- Reach out to local car washes to establish regulations for efficient water use

In addition to the new activities that the City will consider, the City plans to modify the following three activities:

- Track water use by customer category and add categories for bulk water and authorized uses
- Evaluate if a more aggressive inclining block rate structure would encourage further efficient outdoor water use
- Have a mandatory requirement for separate irrigation taps for large commercial customers

The City will consider removing the following four activities from the program:

- Meters were updated in 2010-2011; they do not need to be upgraded again in the time frame of this plan
- Low-flow shower heads were already installed at the recreation center; therefore, no new heads are needed except for replacement
- High-efficiency clothes washer rebate (potential to phase this out based on new State requirements for water-efficient fixtures and industry standards)
- Low-volume toilet rebates (potential to phase this out based on new State requirements for water-efficient fixtures and industry standards)
- Drip irrigation system rebates

TABLE 17
City of Louisville
Water Efficiency Activity Implementation Summary

Water Efficiency Activities	Existing Activity	Continue/Start/Modify Activity	Implementation Time Frame	Other Notes
Foundational Activities				
<i>Staff</i>				
Water Conservation Coordinator	No	Yes	Immediately	City will designate an existing staff member as the water conservation coordinator.
<i>Planning</i>				
Integrated Water Resources Plans	Yes	Yes	Continue Ongoing	
Master Plans/Water Supply Plans	Yes	Yes	Continue Ongoing	Update the 2003 Raw Water Master Plan
Capital Improvement Plans	Yes	Yes	Continue Ongoing	
Feasibility Studies	Yes	Yes	Continue Ongoing	
<i>Metering, Water Rates, Billing</i>				
Automatic Meter Reading Installation and Operations	Yes	Yes	Continue Ongoing	
Meter Replacement	Yes	Yes	Continue Ongoing	
Volumetric Billing	Yes	Yes	Continue Ongoing	
Monthly Meter Reading and Billing	Yes	Yes	Continue Ongoing	
Track Water Use by Customer Categories	Yes	Modify	w/in 1 year	Add categories for bulk water and authorized use.
Inclining Block Rates	Yes	Modify	2 to 3 years	Evaluate the rate structure to see if more efficiency can be encouraged for outdoor irrigation.
Separate Irrigation Meters-Commercial	Yes	Modify	2 to 3 years	This is currently optional for commercial. Consider mandatory for large customers.
Separate Irrigation Meters-HOAs	Yes	Yes	Continue Ongoing	
Separate Irrigation Meters-Multifamily with 5+ Units	Yes	Yes	Continue Ongoing	
Informational Water Budgets	No	Yes	3 to 5 years	
Tap Fees with Water Use Efficiency Incentives	Yes	Yes	Continue Ongoing	
<i>System Efficiency</i>				
Leak Detection Repair Program	Yes	Yes	Continue Ongoing	
Water Line Replacement Program	Yes	Yes	Continue Ongoing	
System Wide Water Audit	No	Yes	1 to 2 years	Perform water audit in accordance with AWWA M36 method
Phreatophyte Eradication	Yes	Yes	Continue Ongoing	
Reuse Water System	Yes	Yes	Continue Ongoing	Increase distribution of reuse water.
<i>Monitoring and Evaluation</i>				
Track Water Use of Large Customers	Yes	Yes	Continue Ongoing	Large water users are tracked as part of the Industrial Pretreatment Program.
Track Irregular Water Use	Yes	Yes	Continue Ongoing	Billing software alerts if there is a deviation in water use.
Annual Water Use Tarking by Customer Category	Yes	Yes	Continue Ongoing	
Update Conservation Plan	No	Yes	5 to 7 years	Every 5 to 7 years to meet CWCB requirements.
Report Water Use to CWCB	No	Yes	Continue Ongoing	Annually
Targeted Technical Assistance				
<i>Water Efficient Fixtures-Indoor</i>				
Low Flow Faucets	Yes	Yes	Continue Ongoing	Installed at City Hall, expand to other facilities in the future.
Low Volume Toilets	Yes	Yes	Continue Ongoing	Installed at City Hall, expand to other facilities in the future.
Ultra-Low Flush Urinals	Yes	Yes	Continue Ongoing	Installed at City Hall, expand to other facilities in the future.
High Efficiency Pre-Rinse Spray Nozzles	No	Yes	2 to 3 years	
<i>Water Efficient Devices-Outdoor</i>				
Weather-Based Irrigation Controller - City Facilities	Yes	Yes	2 to 3 years	

TABLE 17

City of Louisville

Water Efficiency Activity Implementation Summary

<i>Incentives</i>				
Weather-Based Irrigation Controller	No	Yes	2 to 3 years	Includes soil sensor, rain sensor, WaterSense certified
Garden in a Box	No	Yes	1 to 2 years	Offered through Center for Resource Conservation (CRC)
Buffalo Grass Turf Rebate	Yes	Yes	Continue Ongoing	
<i>Efficient Water Use (Audits)</i>				
Outdoor Water Audits-Residential	Yes	Yes	Continue Ongoing	Offered through Center for Resource Conservation (CRC)
Outdoor Water Audits-Commercial	Yes	Yes	Continue Ongoing	Offered through Center for Resource Conservation (CRC)
Indoor Water Audits-Commercial	No	Yes	1 to 2 years	Offered through Center for Resource Conservation (CRC)
Ordinances and Regulations				
Water Waste Ordinance/Limit Overspray	Yes	Yes	Continue Ongoing	
Time of Day Watering Restrictions	No	Yes	1 to 2 years	
Low Water Plants in Medians of Right of Ways	Yes	Yes	Continue Ongoing	
Green Building Requirements	Yes	Yes	Continue Ongoing	
Regulation 84 for Reuse Water	Yes	Yes	Continue Ongoing	
Commercial Water Use-Car Wash Regulations	No	Yes	3 to 5 years	
Coordinated Message with Local Cities	Yes	Yes	Continue Ongoing	Coordinated effort with local cities to establish Best Management Practices (BMPs)
Education and Outreach				
Newsletter	Yes	Yes	Continue Ongoing	
City Water Conservation Website	Yes	Yes	Continue Ongoing	
K-12 Teacher and Classroom Education Programs	Yes	Yes	Continue Ongoing	Tours of water facilities
Customer Surveys	Yes	Yes	Continue Ongoing	
Water Committee	Yes	Yes	Continue Ongoing	Comprised of City Council members, meetings open to public.
Targeted Water Committees	Yes	Yes	Continue Ongoing	When required, create a public member committee to provide input.
Landscape Design and Maintenance Workshops	Yes	Yes	Continue Ongoing	

The estimated annual costs for several water efficiency activities are provided in Table 18. Costs have been estimated for activities that have tangible costs such as rebates and water audits. Costs have not been estimated for activities that involve staff time such as establishing ordinances and providing educational outreach; it is assumed these activities will be completed by the designated conservation coordinated as time allows each year. The costs in Table 18 are in addition to the regular operation and maintenance costs that the City already budgets for to maintain pipelines, replace meters, and detect and repair leaks in the distribution system.

TABLE 18
Suggested Annual Budget for Water Efficiency Activities

Water Efficiency Activity	Quantity	Unit Cost	Annual Budget	Notes
System Wide Water Audit	1	\$10,000	\$10,000	Perform every 1 to 2 years.
High-Efficiency Pre-Rinse Spray nozzles	20	\$100	\$2,000	-
Weather-Based Irrigation Controller – City Facilities	1	\$500	\$500	Only include in budget until large City facilities are equipped.
Weather-Based Irrigation Controller Rebate	20	\$100	\$2,000	\$100 rebate; adjust budget each year based on demand from customers
Garden In A Box	20	\$50	\$1,000	\$50 rebate; Typical cost for a box from CRC is \$100
Buffalo Grass Turf Rebate	10	\$150	\$1,500	\$1/sf up to \$150 maximum
Outdoor Water Audits-Residential	1	\$3,000	\$3,000	Lump sum to CRC.
Outdoor Water Audits-Commercial	1	\$3,000	\$3,000	Lump sum to CRC.
Indoor Water Audits-Commercial	1	\$5,000	\$5,000	Lump sum to CRC.
Total Estimated Annual Budget for Rebates, Incentives and Audits	-	-	\$28,000	
Other Annual Costs to Consider:				
Water Conservation Coordinator	200 hrs	\$80/hr	\$16,000	A new staff member is not required so this is not a new cost. The information is provided to give an expectation of effort required.
Other Periodic Costs to Consider:				
Update Water Conservation Plan	1	\$30,000 to \$40,000	\$30,000 to \$40,000	Every 5 to 7 years.

5.2 Monitoring Plan

Monitoring and verification of program effectiveness will be conducted through a combination of tracking efforts to measure the value of the activities being implemented by the City. Of course, some of the proposed water conservation activities such as general customer education and increased water rates will not be measured directly. However, for some of the activities, such as the commercial audits and rebates, tracking individual customer water use will be performed to monitor water efficiency and track customer water use.

The monitoring and verification efforts that the City proposes to initiate include the following:

- Daily, monthly, and annual water treatment plant production
- Monthly water use by each customer category
- Residential, metered, and treated water production per capita values

6 Adoption, Public Review, and Approval

6.1 Public Review Process

A draft of the Water Efficiency Plan was made available to the public for a 60-day public review period from September 10, 2104 to November 10, 2014. Comments were received from the public and updates were made to the plan. A summary of public comments and proof of posting date is provided in Attachment 2. If changes were made to the plan in response to a comment it is noted in the summary. The City thanks the public for their interest and meaningful comments on the plan.

6.2 Efficiency Plan Approval and Adoption

The plan has been approved by City Staff. It was submitted to CWCB for review in November 2014; there were no additional comments and the plan was approved by CWCB in January 2015. The plan will be brought to City Council for formal approval and adoption.

6.3 Plan Review and Update

The City will summarize the findings of the monitoring and verification efforts and provide a briefing to the Water Committee once a year. The City will use these data as the basis for formally updating the Water Efficiency Plan once every 7 years, as required by the CWCB. The plan will be updated by the end of 2021.

6.4 Compliance with State Planning Requirements

A summary of the plan's compliance with State planning requirements is provided in Attachment 3.

ATTACHMENT 1

City of Louisville Water Rate Structure

City of Louisville Water Rates (Effective May 1, 2014)

Residential Accounts (up to 1" meter size)	
Gallons	Rate
Zero - 5,000	\$12.32 (minimum monthly charge)
5,001 - 20,000	\$12.32 for the first 5,000 gallons, plus \$3.55 for each additional 1,000 gallons (or fraction thereof)
20,001 - 30,000	\$65.57 for the first 20,000 gallons, plus \$8.84 for each additional 1,000 gallons (or fraction thereof)
30,001 - 40,000	\$153.97 for the first 30,000 gallons, plus \$9.55 for each additional 1,000 gallons (or fraction thereof)
40,001 - 50,000	\$249.47 for the first 40,000 gallons, plus \$10.20 for each additional 1,000 gallons (or fraction thereof)
50,001 and over	\$351.47 for the first 50,000 gallons, plus \$10.88 for each additional 1,000 gallons (or fraction thereof)

Commercial and Irrigation Accounts (up to 3/4" meter size)	
Gallons	Rate
Zero - 20,000	\$12.32 (minimum monthly charge), plus \$3.55 for each 1,000 gallons (or fraction thereof)
20,001 - 30,000	\$83.32 for the first 20,000 gallons, plus \$8.84 for each additional 1,000 gallons (or fraction thereof)
30,001 - 40,000	\$171.72 for the first 30,000 gallons, plus \$9.55 for each additional 1,000 gallons (or fraction thereof)
40,001 - 50,000	\$267.22 for the first 40,000 gallons, plus \$10.20 for each additional 1,000 gallons (or fraction thereof)
50,001 and over	\$369.22 for the first 50,000 gallons, plus \$10.88 for each additional 1,000 gallons (or fraction thereof)

Commercial, Irrigation, and 2 Unit Multifamily Accounts (1" meter size)	
Gallons	Rate
Zero - 40,000	\$24.63 (minimum monthly charge), plus \$3.55 for each 1,000 gallons (or fraction thereof)
40,001 - 60,000	\$166.63 for the first 40,000 gallons, plus \$8.84 for each additional 1,000 gallons (or fraction thereof)
60,001 - 80,000	\$343.43 for the first 60,000 gallons, plus \$9.55 for each additional 1,000 gallons (or fraction thereof)
80,001 - 100,000	\$534.43 for the first 80,000 gallons, plus \$10.20 for each additional 1,000 gallons (or fraction thereof)
100,001 and over	\$738.43 for the first 100,000 gallons, plus \$10.88 for each additional 1,000 gallons (or fraction thereof)

Commercial, Irrigation, and 3-6 Unit Multifamily Accounts (1.5" meter size)	
Gallons	Rate
Zero - 80,000	\$36.96 (minimum monthly charge), plus \$3.55 for each 1,000 gallons (or fraction thereof)
80,001 - 120,000	\$320.96 for the first 80,000 gallons, plus \$8.84 for each additional 1,000 gallons (or fraction thereof)
120,001 - 160,000	\$674.56 for the first 120,000 gallons, plus \$9.55 for each additional 1,000 gallons (or fraction thereof)
160,001 - 200,000	\$1,056.56 for the first 160,000 gallons, plus \$10.20 for each additional 1,000 gallons (or fraction thereof)
200,001 and over	\$1,464.56 for the first 200,000 gallons, plus \$10.88 for each additional 1,000 gallons (or fraction thereof)

Commercial, Irrigation, and 7-11 Unit Multifamily Accounts (2" meter size)	
Gallons	Rate
Zero - 160,000	\$49.20 (minimum monthly charge), plus \$3.55 for each 1,000 gallons (or fraction thereof)
160,001 - 240,000	\$617.20 for the first 160,000 gallons, plus \$8.84 for each additional 1,000 gallons (or fraction thereof)
240,001 - 320,000	\$1,324.40 for the first 240,000 gallons, plus \$9.55 for each additional 1,000 gallons (or fraction thereof)
320,001 - 400,000	\$2,088.40 for the first 320,000 gallons, plus \$10.20 for each additional 1,000 gallons (or fraction thereof)
400,001 and over	\$2,904.40 for the first 400,000 gallons, plus \$10.88 for each additional 1,000 gallons (or fraction thereof)

Commercial, Irrigation, and 12-26 Unit Multifamily Accounts (3" meter size)	
Gallons	Rate
Zero - 320,000	\$98.56 (minimum monthly charge), plus \$3.55 for each 1,000 gallons (or fraction thereof)
320,001 - 480,000	\$1,234.56 for the first 320,000 gallons, plus \$8.84 for each additional 1,000 gallons (or fraction thereof)
480,001 - 640,000	\$2,648.96 for the first 480,000 gallons, plus \$9.55 for each additional 1,000 gallons (or fraction thereof)
640,001 - 800,000	\$4,176.96 for the first 640,000 gallons, plus \$10.20 for each additional 1,000 gallons (or fraction thereof)
800,001 and over	\$5,808.96 for the first 800,000 gallons, plus \$10.88 for each additional 1,000 gallons (or fraction thereof)

Commercial, Irrigation, and 27-47 Unit Multifamily Accounts (4" meter size)	
Gallons	Rate
Zero - 640,000	\$197.10 (minimum monthly charge), plus \$3.55 for each 1,000 gallons (or fraction thereof)
640,001 - 960,000	\$2,469.10 for the first 640,000 gallons, plus \$8.84 for each additional 1,000 gallons (or fraction thereof)
960,001 - 1,280,000	\$5,297.90 for the first 960,000 gallons, plus \$9.55 for each additional 1,000 gallons (or fraction thereof)
1,280,001 - 1,600,000	\$8,353.90 for the first 1,280,000 gallons, plus \$10.20 for each additional 1,000 gallons (or fraction thereof)
1,600,001 and over	\$11,617.90 for the first 1,600,000 gallons, plus \$10.88 for each additional 1,000 gallons (or fraction thereof)

Commercial, Irrigation, and 48+ Unit Multifamily Accounts (6" meter size)	
Gallons	Rate
Zero - 1,280,000	\$394.24 (minimum monthly charge), plus \$3.55 for each 1,000 gallons (or fraction thereof)
1,280,001 - 1,920,000	\$4,938.24 for the first 1,280,000 gallons, plus \$8.84 for each additional 1,000 gallons (or fraction thereof)
1,920,001 - 2,560,000	\$10,595.84 for the first 1,920,000 gallons, plus \$9.55 for each additional 1,000 gallons (or fraction thereof)
2,560,001 - 3,200,000	\$16,707.84 for the first 2,560,000 gallons, plus \$10.20 for each additional 1,000 gallons (or fraction thereof)
3,200,001 and over	\$23,235.84 for the first 3,200,000 gallons, plus \$10.88 for each additional 1,000 gallons (or fraction thereof)

ATTACHMENT 2

Public Review Supporting Documentation

Following is a summary of all comments received by the City of Louisville during the Public Review period from September 10, 2014 to November 10, 2014. If changes were made to the plan it has been noted in the response.

Comment 1: Can reuse water be extended to commercial irrigation?

Response: The quality of reuse water Louisville produces does allow commercial users and HOAs, but at this point, Louisville doesn't have the water rights to accommodate additional reuse customers. Most water rights the City owns are single use, and once they are used in the municipal system and treated by the wastewater treatment plant, they must be returned to the waterways where they originated. Only a small portion of the City's rights allow being reused multiple times. During the golf course reconstruction, there were several supply taps added that will be brought online in the near future, but the City is water rights limited after that point.

Comment 2: I'd like to see more education/outreach on xeriscaping. The City may want to reach out to local nurseries and landscapers to promote plants that require less water. The report says that the City has education on landscaping methods, but I haven't see any info on that and it's not obvious where to find such information (not easily found on the website).

Response: The City partners with the Center for ReSource Conservation to conduct sprinkler system audits and a Water-Wise Landscape Seminar. As part of this project, we will review the website to make sure information is easy to find. The City is also planning to participate in CRC's garden in a box program.

Comment 3: Because the City bills for water, the City may want to experiment with methods of providing social pressure to reduce water consumption on the water bills. Water bills provide an easy comparison between this year and last year, but not with how the household compares with other households. I would like to see some grading of a household's water use with comparable households. For example, the water bill could grade a resident A to F for how well the resident conserves water. Or, perhaps something softer like Gold, Silver, Bronze. Or provide percentile information. I think this would give residents a better understanding of how much they consume water. If the City wanted to be systematic about this, the City could do this grading for half the residents and not do anything for the other half, and then see if this information affected consumption. The City could get a CU prof to coordinate this project and then the CU prof can publish a paper and the City could get free publicity from that study.

Response: The City conducted a utility rate study last year, which determined adequacy of rates (how much people pay) and rate structures (how charges are incurred). This work was done with a citizen task force, which made the ultimate recommendations. The task force recommended a water budget structure, which is widely viewed as the most conservation oriented of the structures typically used by water providers. The Council initially did not believe this rate structure was justified, but agreed to further consider it for the future. This conversation will be continuing over the next year to determine which structure will be implemented. As part of this discussion, the Council already expressed interest in providing an educational component on utility bills. If the City adopts the water budget structure, staff will have to gather information such as landscaped area and indoor water consumption, which will make the type of comparison you are asking about possible. If this structure is not implemented, staff will have to evaluate what kind of educational information can be provided.

Comment 4: The section on climate change's impact on water use is disappointing. No one expects the water plan to have a completely accurate prediction of the future, so the "crystal ball" comment is completely unnecessary and a little patronizing. One possible expectation from climate change is wilder swings in rainfall -- sometimes more flooding, sometimes longer droughts. We should be able to understand how prepared the City is for a more extreme event, which could be based on so many standard deviations from the historical average. The current "plan" on how to deal with climate change is not helpful -- "regularly update and refine demand projections based on actual current conditions." Isn't this something that should be done in the absence of climate change? How is this plan for climate change different? What does it even mean?

Response: For a municipality of Louisville's size, regularly updating forecast projections and working with other municipalities to share knowledge and observations would be our ongoing preparations. With Louisville's staff and resources, we would not be able to stay on the cutting edge of the climate change research. However, when we are working with a world-class consultant, such as CH2M Hill, we should get a summary of most current data. I will ask CH2 to provide more detail in that section. You are correct, the City is always evaluating its capacity to respond to droughts. Louisville currently owns more water rights than what is required for serve its population, but if the demands outstrip supply, the City already has tools to manage that by declaring the various drought stages and purchasing supplemental water supplies. Additional information was added to the plan in Section 2.4.1.1.

Comment 5: Section 4.2.2.3: What does the City have to consider with rain sensor/weather-based irrigation technology before making a decision? Section 5.1 shows some contradiction with weather-based irrigation. The City is going to add a rebate for this technology for customers, but the City still has to evaluate the controllers for the City's systems. If it's cost effective for customers and worth the City to pay customers to install these controllers, shouldn't these be cost effective for the City?

Response: That could use some clarification. Having spoken to the Parks and Open Space Departments in the past, I believe they would like to install rain sensors, but it is a question of priority when it comes to spending their budget. Until recently, City Departments did not pay utility bills, so there was no financial incentive for them to conserve water, although I believe they are mindful of their water consumption. I expect that a stronger emphasis on water efficiency will emerge with phasing in water charges. Additional information was added to the plan in Section 4.2.2.3.

Comment 6: While I support a single person as the water conservation coordinator for the City, I'm concerned that the report says a new staff member is not required (Table 18). Is this work going to displace other work normally done by staff? Or were these duties done by several people in the past so the idea would be that we could just reallocate resources? If so, how many employees were doing the water conservation coordinator duties in the past year?

Response: This plan was compiled with the requirement that all conservation programs be handled by existing staff. CH2's recommendation is that one staff member be the point of contact for conservation issues. Currently, conservation issues are handled by two staff members who would have to shift workloads to accommodate that recommendation. If staff determines that cannot be done, other options would be evaluated, such as hiring more staff or cutting conservation programs.

Comment 7: Table 1 does not appear to include CBT storage which comes with CBT water. The Marshall Lake storage volume appears to ignore the foreign water storage right. If these two components of storage are included in table 1 the available storage would be noticeably greater.

Response: The following information was added to Table 1: Colorado-Big Thompson: 1,447 acre-feet. Staff verified that all storage accounts have been included in the Marshall storage number. The storage total was updated.

Comment 8: Page 1-2, the maximum divertible yields are noticeable less than my recollection of the potential from the City's basin water rights, if all rights are diverted at the maximum volumes allowed.

Response: The annual yield from South Boulder Creek is 3,000-5,100 acre-feet/year.

Comment 9: In Table 2 there is mention of the WWTP, water supply limits and system reliability. It is not clear why this material is in a water conservation plan.

Response: The WWTP flow is related to the capacity of the reuse system, and the State requires information on existing infrastructure.

Comment 10: Tables 15 and 17 are very good summaries. They will make monitoring and updating the conservation plan straightforward.

Response: Thank you

Following is proof the plan was posted for Public Review on September 10, 2014 and instructions were provided for how to submit comments.

Figure 1 – Notice of Draft Water Efficiency Plan for Public Comment



Figure 2 – Link to Plan and Email Address

The screenshot displays the City of Louisville website. At the top, the header features the city logo and a search bar with the text "FIND WHAT YOU'RE LOOKING FOR:". Below the header is a navigation menu with links for HOME, SERVICES, GOVERNMENT, BUSINESS, VISITING, and I WANT TO... . The main content area is titled "Public Works > Draft Water Efficiency Plan" and includes the following text:

Draft Water Efficiency Plan

September 10, 2014

The City is currently taking comments on the Proposed Water Efficiency Plan. The comment period is 60 days and will end on November 9th, 2014. All comments and questions should be submitted to Dmitry Tepo.

At the bottom of the page, there is contact information for the City of Louisville: 749 Main St, Louisville, CO, 80027; P: 303.666.6565 | F: 303.335.4550. Logos for energySMART and the City of Louisville are also present.

The Windows taskbar at the bottom of the screenshot shows various application icons and the system clock indicating 3:00 PM on 9/10/2014.

ATTACHMENT 3

Compliance with State Requirements

Compliance with State Planning Requirements

Colorado Revised Statute § 37-60-126 requires a covered entity to develop, adopt, make publicly available, and implement a water conservation plan that will encourage its domestic, commercial, industrial, and public facility customers to use water more efficiently. Key elements that must be fully evaluated in development of the plan are listed as follows:

1. Water-saving measures and programs including: (I) water-efficient fixtures and appliances; (II) water-wise landscapes; (III) water-efficient industrial and commercial water-using processes; (IV) water reuse systems; (V) distribution system leak identification and repair; (VI) information and education; (VII) conservation oriented rate structure; (VIII) technical assistance; (IX) regulatory measures designed to encourage water conservation; (X) incentives to implement water conservation techniques including rebates.
2. Role of conservation in the entity's supply planning.
3. Plan implementation, monitoring, review, and revision.
4. Future review of plan within 5-7 years.
5. Estimated savings from previous conservation efforts as well as estimates from implementation of current plan and new plan.
6. A 60-day minimum public comment period (or other time period based on local ordinance).

The following section of the plan details the City of Louisville's compliance with this statute.

City of Louisville Compliance

The City of Louisville developed this conservation plan in order to comply with C.R.S. § 37-60-126. Each element of compliance is documented below.

1. Consideration of specific conservation measures

(I) **Fixture and appliances** – The City actively promotes the installation of water efficient fixtures and appliances through their regular conservation education efforts. City facilities have been upgraded with high-efficiency fixtures and appliances, including City Hall (low-flow faucets, low-volume toilets) and the recreation center (low-flow shower heads, ultra-low flush urinals, and a pool cover). The City currently offers a high-efficiency toilet rebate and clothes washer rebate, but both will be phased out in the coming years because of changes to the state and federal regulations that mandate water efficient products at the retail level. A new Colorado law passed in 2014 will phase in mandatory sale of WaterSense labeled toilets and showerheads. The City is planning to implement a high-efficiency pre-rinse spray valve installation program in the coming years.

(II) **Water wise landscape** – The City actively promotes water wise landscaping practices through their regular conservation education efforts and conservation-oriented rate structure. Outdoor irrigation efficiency audits are offered by the Center for Resource Conservation (CRC) for residential customers. The City has design standards and guidelines for commercial customers that incorporate low-water-use plants and efficient irrigation. The City encourages the installation of water wise landscapes through buffalo grass rebates and a new rebate program for weather-based irrigation controllers. The City irrigates a significant number of properties using reuse water and will continue to seek new opportunities for reuse water irrigation.

(III) **Commercial, Industrial and Institutional (CII) measures** – The City actively promotes CII water conservation through their regular conservation education efforts and conservation-oriented rate structure. The City plans to implement a commercial audit program through the Center for ReSource

Conservation, targeted at high demand customers. As part of this effort the City will install high efficiency pre-rinse spray valves (where appropriate) in commercial kitchens.

(IV) **Water reuse systems** – The City’s wastewater treatment plant (WWTP) has the capability to treat a portion of the water to be reused for irrigation. Reuse water is primarily used for irrigation at Coal Creek Golf Course, Community Park, Sports Complex, Miner’s Field, and the WWTP. The City is actively working to expand use of reuse water.

(V) **Water loss and system leakage reduction** – The City of Louisville strives to maintain a high level of water system efficiency within its distribution system and seeks to reduce water loss whenever and wherever possible. The City works to control apparent losses with accurate metering and regular meter testing, as well as assuring that all customers are metered and billed for the water they use. The City implements a regular leak detection and repair program for the water system. A private leak detection contractor is hired every other year to bring listening equipment to the City and to search for water main leaks in designated areas of the City. If a leak is detected, the City has a repair crew ready to dig up the pipe and repair the leak. The City plans to implement an annual M36 Water Loss Control audit beginning in 2015.

(VI) **Information and public education** – A key component of the City’s water conservation efforts is public education and information. The City regularly provides information to customers about ways to conserve water and avoid water waste through flyers and bill stuffers and the utility web site. The City also maintains conservation materials and information that are available upon request. The City communicates about water use and conservation with their customers using the following tools and methods:

- Regular newsletter distributed.
- Water conservation information available on the City’s website.
- A water committee made up of City Council members; meeting agendas are posted and the public are welcome at any meeting. The purpose of the committee is to provide information to the City Council about current City water activities.
- Educational opportunities including school tours of water infrastructure facilities.
- Instructional workshops for customers on relevant topics such as irrigation efficiency and management.
- Landscape design and maintenance workshops (through the Center for Resource Conservation [CRC]).

(VII) **Water rate structure** – The City currently bills its customers on a monthly basis using a conservation-oriented increasing block rate structure (described in Attachment 1). This conservation oriented rate structure was updated in 2014.

(VIII) **Technical assistance** – The City obtained a grant from CWCB for this plan and contracted with CH2M HILL Engineers, Inc. and WaterDM to develop the plan.

(IX) **Regulatory measures** – The City relies on the following regulatory measures to improve water use efficiency:

- Louisville Municipal Code (Title 17) established development Design Standards & Guidelines for commercial, industrial, and mixed use developments that incorporate low-water-use plants and efficient irrigation concepts into the landscape design of each development.

- Water waste ordinance, includes overspray limitations.
- Voluntary time-of-day watering restrictions.
- Compliance with Colorado Department of Public Health and Environment's (CDPHE's) Regulation No. 84 limits runoff, ponding and overspray from areas using reuse water.
- Soil amendment practices for City's Open Space.
- Louisville Municipal Code established development Design Standards & Guidelines for commercial.

(X) **Incentives** – The City has offered rebates for many water efficiency products in the past. Under this plan the City will offer rebates for buffalo grass, Garden-in-a-box, weather-based irrigation controllers, and high-efficiency pre-rinse spray valves.

2. Role of conservation in raw water supply planning

This water conservation plan represents the City of Louisville's most comprehensive effort to integrate water conservation into water supply planning. Through this plan, the City has established that their raw water supply is sufficient to meet future growth.

3. Plan implementation, monitoring, review, and revision

The City monitors water use on a regular basis and will continue to do so. The City produces monthly and annual demand reports for each customer sector and the system as a whole and keeps close track of demand. The City will review and update this water conservation plan every five to seven years. During this review, progress towards achieving the stated conservation goals will be evaluated.

4. Future review of plan within seven years

The City will review and update this water conservation plan every seven years or as needed.

5. Estimated savings from previous conservation efforts and current plan

Past savings: Based on a gradual increase of savings over time the total water saved since 1999 from demand management is estimated to be 326 MG (1,001 acre-feet).

Future savings: If the elements of this plan are fully realized, then it is estimated that water demand at 2032 will be reduced by 241 MG (0.66 mgd) as result of passive and active water conservation measures.

6. Public comment period

As per state statute, the City of Louisville conducted a 60-day public comment period of this water conservation plan. The public comment period began on September 10, 2014 and was concluded on November 10, 2014. Citizens and interested parties were invited to comment via legal advertisement and web site posting. The plan was posted on the City's web site and hard copies were made available at public offices. Upon completion of the public comment period, the conservation plan will be submitted to CWCB for review. After CWCB review and approval the plan will be finalized and adopted by City Council.

