

# Colorado Springs Utilities

*It's how we're all connected*

## **Commercial Water Meter Sizing Form Review Process to be used in conjunction with the International Plumbing Code**



*Commercial is defined as all construction considered commercial and industrial development, which includes all residential housing equal to or over 3 living units with one common meter and/or any separate irrigation meter. Colorado Springs Utilities will reserve the right to request a Commercial Water Meter Sizing form when a facility type or water use is in question and will be required to be submitted before a Service Agreement can be paid.*

**Commercial Water Meter Sizing Review Process**

**Colorado Springs Utilities accepts two alternate methods for sizing water meters as described in the International Plumbing Code (IPC).**

**(Adopted by the City of Colorado Springs)**

**Alternate method 1**

1. The Property Owner (or his assigned representative) shall be responsible for the accuracy of all data calculated and sent to Colorado Springs Utilities for review.
2. The International Plumbing Code, Section 105.4, An alternate engineered design for water meters may be submitted to Customer Contract Administration, Suite 210 (second floor), (719) 668-8111 at the Pikes Peak Regional Building Development Center, for consideration.
3. Customer Contract Administration will notify Customer Operation (Field Services) to pick-up the construction documents and calculations for the proposed water meter.

A registered design professional can submit sufficient technical data to substantiate an alternate design for water meter sizing. This data shall include, but not limited to, construction documents and calculations, to support the proposed alternate design of the water meter, for review and approval by Colorado Springs Utilities. If a diversity factor is used in calculating the meter and service line size, then the engineer shall submit documentation justifying the diversity factor criteria.

Depending on the submittal, Field Services shall review the proposed water meter sizing documents in conjunction with the current approved version of the International Plumbing Code, Appendix E for sizing criteria. Field Services will coordinate any comments/revisions with the registered design professional. Submittal will be reviewed within 10 business days. If the alternative engineered design is not approved, a Field Service representative shall notify the designer and request that the alternate method 2 be used. Questions regarding the status of the submittal, call 719-668-7279.

Note: The water meter shall not be released until the water meter sizing form has been reviewed and approved by Colorado Springs Utilities and development fees paid. The customer (s) may not pay development fees prior to approval of the water meter form.

4. Once approved, Field Services will return the water meter documentation to Customer Contract Administration for entry into the eB database.
5. Customer Contract Administration will check the water meter size from the eB database to create a service contract with the appropriate Water Development Charges. (Utilities Rules and Regulations)

**Alternate method 2**

1. The Property Owner (or his assigned representative) shall be responsible for the accuracy of all data calculated and sent to Colorado Springs Utilities for review.
2. The Developer works with the Architect/Mechanical engineer to provide the necessary documentation for water meter sizing. (One form per building structure)
3. The Developer submits the water meter sizing form (s) per IPC Appendix E, along with one set of drawings of the proposed Mechanical/Irrigation plan showing the water fixtures and piping to Customer Contract Administration, Suite 210 (second floor), (719) 668-8111 at the Pikes Peak Regional Building Development Center.
4. Customer Contract Administration will notify Customer Operation (Field Services) to pick-up the mechanical/irrigation plans and water meter sizing form(s).
5. Field Services shall review the proposed water meter sizing documents in conjunction with the current approved version of the International Plumbing Code for sizing criteria. [Figure E301.3 (1) and Table E201.1], and applicable Colorado Springs Utilities meter configurations. Field Services will coordinate any comments/revisions with the Developer. Submittal will all be reviewed within 10 business days. Questions regarding the status of the form, call 719-668-7279.

Once approved, Field Services will return the water meter sizing form to Customer Contract Administration for entry into the eB database.

Note: The water meter shall not be released until the water meter sizing form has been reviewed and approved by Colorado Springs Utilities and development fees paid. The customer (s) may not pay development fees prior to approval of the water meter form. Colorado Springs Utilities allows the size of the service line and tap (with the exception of an allowed 4" tap and 2" meter), to be one size greater than the meter size, which will be verified by Customer Contract Administration. (Chapter 7, Water LESS)

6. Customer Contract Administration will check the water meter size from the eB database to create a service contract with the appropriate Water Development Charges. (Utilities Rules and Regulations)



# Colorado Springs Utilities

*It's how we're all connected*

## Application:

All landowners relevant to this application must be included as applicants of this submittal. By signing this application and attaching a completed Statement of Authority, applicant and property owner attests that they are aware of this application and agree to its content.

The Applicant/Owner shall attach the water meter sizing documentation along with one set of drawings of the proposed water/plumbing mechanical plans for the structure to Customer Contract Administration, Suite 210 (second floor), (719) 668-8111, at the Pikes Peak Regional Development Center.

Sizing water meters shall be based upon the Water Supply Fixture Units or an alternate engineered design, in the current approved version of the International Plumbing Code, approved by the City of Colorado Springs and El Paso County, Pikes Peak Regional Building Department.

Owner/Applicant Name \_\_\_\_\_ Phone # \_\_\_\_\_

Print Name

Service Address \_\_\_\_\_

(Address issued by PPRBD Enumeration)

Legal Description \_\_\_\_\_ Tax ID # \_\_\_\_\_

Use of Facility \_\_\_\_\_

(Denote Answer)

Number of Construction Phases: 1      2      3      4

Domestic Use only:    Y                    N

Irrigation Use only:    Y                    N

Combined Domestic/Irrigation:    Y                    N

Is meter installation in a pit or vault or Mechanical room (Inside installation)? \_\_\_\_\_

*The undersigned hereby makes application to Colorado Springs Utilities for approval of Water Service Meter Size. Applicant has read and understands the application instructions, and certifies that all information including the attached Statement of Authority herein is true and correct to the best of their knowledge and belief.*

Owner/Applicant Signature

Date

**STATEMENT OF AUTHORITY FOR** \_\_\_\_\_

1. This Statement of Authority relates to an entity named: \_\_\_\_\_
2. The type of entity is a

- |   |   |
|---|---|
| <input type="checkbox"/> Corporation                              | <input type="checkbox"/> Registered limited liability limited partnership |
| <input type="checkbox"/> Nonprofit Corporation                    | <input type="checkbox"/> Limited partnership association                  |
| <input type="checkbox"/> Limited Liability Company                | <input type="checkbox"/> Unincorporated nonprofit association             |
| <input type="checkbox"/> General partnership                      | <input type="checkbox"/> Government or governmental subdivision or agency |
| <input type="checkbox"/> Limited partnership                      |   |
| <input type="checkbox"/> Registered limited liability partnership |   |
| <input type="checkbox"/> Business trust                           |   |
| <input type="checkbox"/> Trust                                    |   |
| <input type="checkbox"/> Other _____                              |   |

3. The entity is formed under the laws of \_\_\_\_\_

4. The mailing address for the entity is \_\_\_\_\_

5. The name and position of each person authorized to execute instruments conveying, encumbering, or otherwise affecting title to real property on behalf of the entity is

\_\_\_\_\_.

6. (Optional) The authority of the foregoing person(s) to bind the entity is

- not limited  limited as follows: \_\_\_\_\_

7. (Optional) Other matters concerning the manner in which the entity deals with interest in real property: \_\_\_\_\_.

8. This Statement of Authority is executed on behalf of the entity pursuant to the provisions of Section 38-30-172, C.R.S.

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

By: \_\_\_\_\_

STATE OF COLORADO                    )  
  ) ss.  
County of El Paso                         )

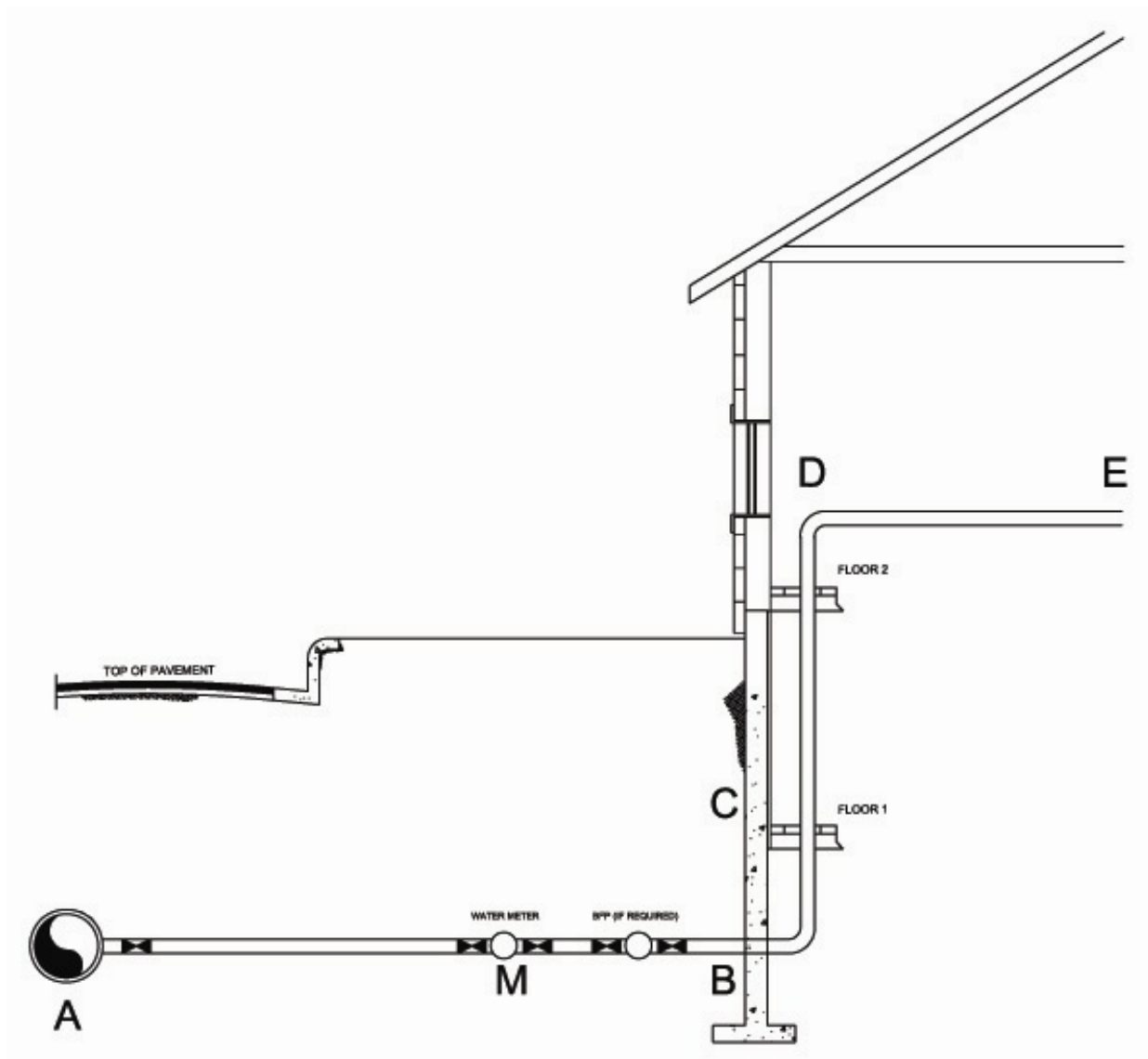
The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ by \_\_\_\_\_ as \_\_\_\_\_ of \_\_\_\_\_.

Witness my hand and official seal

My Commission Expires: \_\_\_\_\_

\_\_\_\_\_  
Notary Public

**Alternate method 2 - Pressure Head:**



Example of basic diagram from the International Plumbing Code (IPC) – Figure E 103.3 (1)

Total development length (AE) = \_\_\_\_\_ Feet [IPC, Figure E103.3 (1)]

Static Pressure = Overflow Elevation (Gradient Elevation) ft - Meter Elevation ft / 2.31ft/psi

= \_\_\_\_\_ psi



Colorado Springs Utilities  
It's how we're all connected

## Commercial Water Meter Customer Data Sheet

Name of Development:	Date:
----------------------	-------

Address of Development:	Contact Information: Name: _____ Phone: _____
-------------------------	--

Fixture Type (Common Fixtures listed below)	Number of Fixtures	Total Number of Fixtures	IPC Load Value (60psi)	IPC Total Fixture Units (wsfu)
<i>Rev.4-20-2012</i>				
Bathroom Group (WC - Lav - Bathtub)	Flush Valve Tank Type	(    +    ) =	X	=
Bathtub	Public Private	(    +    ) =	X	=
Dishwasher		(    +    ) =	X	=
Drinking Fountain		(    +    ) =	X	=
Kitchen Sink	Public - Hotel, Restaurant, etc	(    +    ) =	X	=
	Private	(    +    ) =	X	=
Laundry Tray		(    +    ) =	X	=
Lavatory	Public	(    +    ) =	X	=
	Private	(    +    ) =	X	=
Service Sink / Mop basin		(    +    ) =	X	=
Shower Head	Public	(    +    ) =	X	=
	Private	(    +    ) =	X	=
Urinal	1" flush valve	(    +    ) =	X	=
	3/4" flush valve	(    +    ) =	X	=
	flush tank type	(    +    ) =	X	=
Washing Machine	8 lb. Private	(    +    ) =	X	=
	8 lb. Public	(    +    ) =	X	=
	15 lb.	(    +    ) =	X	=
Water Closet Flush Valve	Public	(    +    ) =	X	=
	Private	(    +    ) =	X	=
Water Closet Tank Type	Public	(    +    ) =	X	=
	Private	(    +    ) =	X	=
	Flushometer	(    +    ) =	X	=
Hose Bib/Wall Hydrant	1/2"	(    +    ) =	X	=
	3/4"	(    +    ) =	X	=
Other		(    +    ) =	X	=
Other		(    +    ) =	X	=
Other		(    +    ) =	X	=
Other		(    +    ) =	X	=
Other		(    +    ) =	X	=

*Note: All listed fixture values from IPC Table 103.3(2), for fixtures not listed, loads should be assumed by comparing the fixture to one listed using water in similar quantities and at similar rates. If gpm demand is known use IPC Table 103.3(3).*

<b>Will Booster Pump(s) be used for the domestic system?</b> <b>Y</b> <b>N</b> If yes, please provide peak pumping system capacity (gpm) and information on any water fixtures that will bypass the booster pump(s).      Peak Capacity = _____ gpm
<b>Any process water or special water use? (not included in above fixtures)</b> <b>Y</b> <b>N</b> if yes, type and peak gpm demand?      _____ gpm

**I affirm that the information given is accurate and acknowledge that approval of meter size and maximum water capacity is based solely on the information provided above, and such determination is at the sole discretion of Colorado Springs Utilities.**

Owner/Agent: _____	Date: _____
Design/Mechanical Engineer/Plumber: _____	Date: _____



## Commercial Irrigation Demand Worksheet

*Please choose preferred method*

Actual Demand Method (AD)

Design Criteria Method (DC)\*

(AD) Example illustrates a 3-zone system with zones A and B running simultaneously and C independently. To determine peak GPM: zone A + B operating together yields demand of 40 GPM (30 + 10); zone C yields demand of 30 GPM. Meter is sized to largest demand of 40 GPM for system. Appropriate meter size is 1-inch.

**Example (AD)**

Zone	# Heads	GPM per Head	Total GPM per Zone
A	30	1	30
B	20	0.5	10
C	20	1.5	30
<b>Totals</b>	<b>70</b>		<b>70</b>

**Example:** Zone A + Zone B + Zone \_\_\_\_ = 30 GPM + 10 GPM + \_\_\_\_ GPM = 40 GPM Peak Irrigation System Demand

*For AD Method, please provide requested information in table below*

*For DC Method, enter Value for maximum flow rate in box below*

Zone	# Heads	GPM per Head	Total GPM per Zone

*Determine maximum flow rate (GPM) by identifying which zones will be operating together ~or~ enter Design Criteria maximum flow rate (GPM)*

Zone \_\_\_\_ + Zone \_\_\_\_ + Zone \_\_\_\_ = \_\_\_\_ GPM + \_\_\_\_ GPM + \_\_\_\_ GPM = \_\_\_\_\_ GPM Peak Irrigation Demand

**AD**

**DC \***

*\* By selecting the Design Criteria Method (DC) for Irrigation Demand reporting, Applicant/Owner agrees to have empowered the Applicant (if other) to submit the information on their behalf and to the accuracy of the irrigation peak demand value reported herein. The DC peak demand value will be used in lieu of Approved Final Irrigation Plan submittal for the purposes of this form.*

*Determine minimum flow rate (GPM) by identifying which zones will be operating together.*

Zone \_\_\_\_ + Zone \_\_\_\_ + Zone \_\_\_\_ = \_\_\_\_ GPM + \_\_\_\_ GPM + \_\_\_\_ GPM = \_\_\_\_\_ GPM Min. Irrigation Demand

**I affirm that the information given is accurate and acknowledge that approval of meter size and maximum water capacity is based solely on the information provided above, and such determination is at the sole discretion of Colorado Springs Utilities.**

Owner/Agent: \_\_\_\_\_ Date: \_\_\_\_\_

Design Engineer: \_\_\_\_\_ Date: \_\_\_\_\_



Colorado Springs Utilities  
It's how we're all connected

**Commercial Water Meter Sizing Form  
Demand Summary Sheet**

**Backflow:**

Backflow Pressure Loss, based on make and model (BPL) = \_\_\_\_\_ psi  
(Located in manufacturers specification manuals)

**Flow:**

Irrigation Flow (I): A) Normal Flow Rate: \_\_\_\_\_ (gpm)

B) Maximum Flow Rate: \_\_\_\_\_ (gpm)

DC Method used if  
Box is checked

Domestic Flow (D): A) Normal Flow Rate = \_\_\_\_\_ (gpm)

B) Maximum Flow Rate = \_\_\_\_\_ (gpm)



*[Domestic Max Flow Rate based on wsfu total of \_\_\_\_\_ (from page 6) plus your reported Process Water  
and/or Booster Pump Capacity totaling \_\_\_\_\_ gpm.]*

Total irrigation and domestic: Normal Flow Rate: I (A) + D (A) = \_\_\_\_\_ (gpm)

Maximum Flow Rate: I (B) + D (B) = \_\_\_\_\_ (gpm)

Service Line Size: \_\_\_\_\_ Inch      Status:      Existing      Proposed



**Requested Meter Size to be Installed [IPC, Table E201.1 (50-60 psi)] = \_\_\_\_\_ Inch**

*Additional Customer Comments:*

The Approval of Water Meter size will be prepared exclusively on the basis of the attached information submitted by the Applicant/Owner. Applicant/Owner hereby agrees to indemnify Colorado Springs Utilities from any and all claims, damages, losses and/or costs arising out of, or related to any mis-information, change or alteration of any information; including but not limited to Additional Water Development Charges pursuant to Utilities Rules and Regulations Section 41.E. Authorized submission to Colorado Springs Utilities of the provided information herein indicates that Applicant/Owner accepts the above conditions.

Applicant/Owner: \_\_\_\_\_ Date: \_\_\_\_\_



**This sheet for Colorado Springs Utilities Internal use only:**

Application received by \_\_\_\_\_ Date \_\_\_\_\_

Type and size of meter to be installed by Colorado Springs Utilities

Meter type:            Positive Displacement            Turbine            SingleJet

Size of meter \_\_\_\_\_

Comments:

---

---

---

---

---

---

---

---

---

---

**Field Service approved** (per information provided):

By \_\_\_\_\_ Date \_\_\_\_\_

Print Name \_\_\_\_\_

**Information entered into eB database:**

By \_\_\_\_\_ Date \_\_\_\_\_

Print Name \_\_\_\_\_

Service Point ID or SPID \_\_\_\_\_ Premise I.D. \_\_\_\_\_

**Customer Contract Administration: (Scanned into eB database)**

**Meter Sizing Chart for Service lines (meter size with the approval of Customer Operations)**

Pipe Size (O.D.) of Service line	Size of Tap (minimum and installation)	Meter Size based on flow requirements (min./max. size)(1)(5)	Maximum Flow rate AWWA – M22
<b>HDPE Pipe (CTS) (2)</b>			
1" HDPE CTS	1" (Sidewall)	¾" meter	¾" = 30 GPM
1 1/2" HDPE CTS	1 ½" (Sidewall)	¾", 1" meter	1" = 50 GPM
2" HDPE CTS	2" (Sidewall)	1", 1 ½" meter	1 ½" = 100 GPM
<b>Copper Pipe (CTS)</b>			
¾" CTS	¾" (Tap)	¾" meter	¾" = 30 GPM
1" CTS	1" (Tap)	¾", 1" meter	1" = 50 GPM
1 ½" CTS	1 ½" (Saddle)	1", 1 ½" meter	1 ½" = 100 GPM
2" CTS	2" (Saddle)	1 ½", 2" meter	2" = 160 GPM
<b>Service line pipe (does not apply to Fire lines) (3)</b>			<b>Flow based on type of meter (Turbo, Compound, etc.)(3)</b>
4"/ 3" (4)	4"	3" meter	=
4"	4"	4" meter	=
6"	6"	6" meter	=
8"	8"	8" meter	=

Note: To be read in conjunction with Chapter 7 of the Water Line Extension and Service Standards and Appendix E of the current approved International Plumbing Code.

- (1) Meter Sizing for Commercial Buildings on Meter Sizing Form and the number of w.s.f.u., engineered by the consultant engineer. Smaller meters installed with the approval of Customer Operations based on maximum flow and length of service line.
- (2) ¾" HDPE pipe up-sized to 1" pipe per RBD requirements, HDPE pipe to be engineered by the consultant engineer.
- (3) Different meters (turbo, compound, etc.) are required for different applications based on facility use, per Meter Sizing Form and Customer Operations.
- (4) Variance: 4" Tee reduced at pit to accommodate a 3" meter, see Water Construction drawings.
- (5) Variance: A variance for a larger meter and the design of HDPE pipe, maybe granted, based on design engineer's calculations.

**Water Service Sizing Chart for ¾" and 1" meters**

**¾" Water Meter Size**

**Maximum flow – 30GPM**

**80% capacity – 24GPM**

Static Pressure at water main/point of Connection  
PSI

<b>130</b>	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
<b>120</b>	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B
<b>110</b>	A	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B
<b>100</b>	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B
<b>90</b>	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B
<b>80</b>	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B
<b>70</b>	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
<b>&lt;60</b>	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	<20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180		

Linear feet of type "K" copper service from the water main to the primary meter location

**1" Water Meter Size**

**Maximum flow– 50GPM**

**80% capacity – 40GPM**

Static Pressure at water main/point of Connection  
PSI

<b>130</b>	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C
<b>120</b>	B	B	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C
<b>110</b>	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C
<b>100</b>	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C
<b>90</b>	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C
<b>80</b>	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
<b>70</b>	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
<b>&lt;60</b>	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	<20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180		

Linear feet of type "K" copper service from the water main to the primary meter location

**Legend**

A= ¾" copper/ 1" HDPE service line, B=1" copper/ 1 ½" HDPE service line, C=1 ½" copper/ 2" HDPE service line