

Draft
Dual (Sub)-Metering Cost Comparison
For Urban Agriculture

Urban Agriculture Definition

The City’s Planning and Development Services Department will likely be defining Urban Agriculture as:

- A) Non-Profit Community Gardens
- AND
- B) For-Profit Urban Gardens

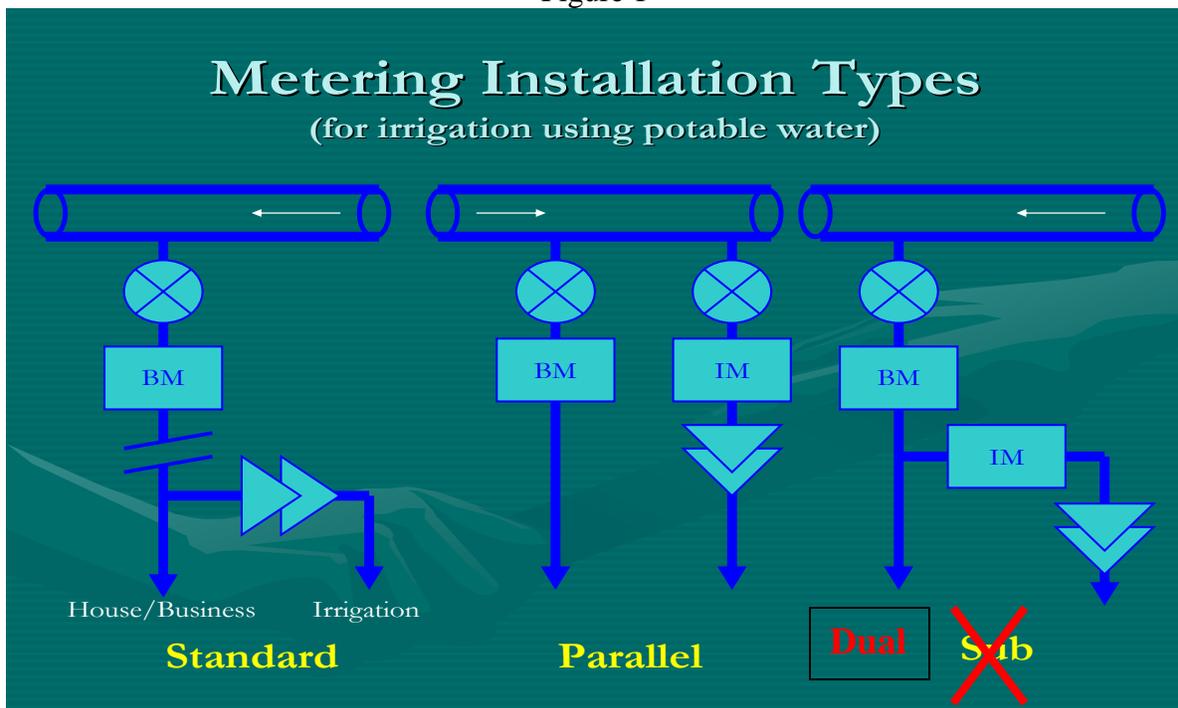
Residential properties will likely be excluded from Urban Agriculture definition, since gardening is a traditional use of residential properties.

Dual (Sub)-Metering Definition

A meter installed downstream of the main potable water billing meter, and immediately adjacent to the main billing meter, to accurately record irrigation water use.

This allows Customers to accurately account for irrigation water use, in order to realize wastewater savings (so that customers can ensure that they are not paying wastewater fees associated with the water they use for irrigation).

Figure 1



Dual-Metering as applied to Urban Agriculture Uses (defined by Planning and Development Services) is applicable to only two types of installations, non-profit Community Gardens, and for-profit Urban Farms. These would both be eligible for the commercial water rates from the City of Tucson.

The following table provides a guide for meter installation types:

**Table 1
Metering Installation Types
and
Applicable Locations**

Water Type	Customer Type	Installation Type			Remarks
		Standard	Parallel	Dual Meter	
Potable	Commercial and Multi-Family	Yes	Yes	No*	* Parallel Meters are used for this application
	Non-Profit Commercial	Yes	Yes	Yes	
	Residential	Yes	Yes	No*	*Not eligible for Urban Agriculture
Reclaimed	Commercial and Multi-Family	Yes	Yes	No*	* Reclaimed meters do not have an associated wastewater component and would not benefit from Dual (Sub) Metering
	Non-Profit Commercial	Yes	Yes	No*	
	Residential	Yes	Yes	No*	

Meter Installation Costs

Table 2 on following page shows existing installation costs for Standard meter installations that are also applicable to Parallel Meter installations, both of which are presently allowed for at Tucson Water.

**Table 2
Standard and Parallel Meter Installation Matrix
Start-Up Costs (1)**

Meter Size	Installation Fee		System Equity Fee	CAP Fee	Back-flow Permit	Totals
	Type	Cost				
5/8 "	Existing Tap Developer install	359.00	(4)	(4)	\$82.00	\$ 441.00 (4)
	Existing Tap TW Install	438.00	(4)	(4)	\$82.00	\$ 520.00 (4)
	Tap w/pavement	2,414.00	1,311.00	200.00	\$82.00	\$4,007.00
	Tap w/o pavement	1,536.00	1,311.00	200.00	\$82.00	\$3,129.00
3/4 "	Existing Tap Developer install	383.00	(4)	(4)	\$82.00	\$ 465.00 (4)
	Existing Tap TW Install	462.00	(4)	(4)	\$82.00	\$ 544.00 (4)
	Tap w/pavement	2,439.00	1,967.00	300.00	\$82.00	\$4,788.00
	Tap w/o pavement	1,561.00	1,967.00	300.00	\$82.00	\$3,910.00
1 "	Existing Tap Developer install	428.00	(4)	(4)	\$82.00	\$ 510.00 (4)
	Existing Tap TW Install	527.00	(4)	(4)	\$82.00	\$ 609.00 (4)
	Tap w/pavement	2,504.00	3,278.00	500.00	\$82.00	\$6,364.00
	Tap w/o pavement	1,626.00	3,278.00	500.00	\$82.00	\$5,486.00
1-1/2"	Existing Tap Developer install	634.00	(4)	(4)	\$82.00	\$ 716.00 (4)
	Existing Tap TW Install	778.00	(4)	(4)	\$82.00	\$ 860.00 (4)
	Tap w/pavement	3,054.00	6,555.00	1,000.00	\$82.00	\$10,691.00
	Tap w/o pavement	2,176.00	6,555.00	1,000.00	\$82.00	\$9,813.00
2 "	Existing Tap Developer install	755.00	(4)	(4)	\$82.00	\$ 837.00 (4)
	Existing Tap TW Install	899.00	(4)	(4)	\$82.00	\$ 981.00 (4)
	Tap w/pavement	3,419.00	10,488.00	1,600.00	\$82.00	\$15,589.00
	Tap w/o pavement	2,541.00	10,488.00	1,600.00	\$82.00	\$14,711.00

Notes:

- 1) Standard fees included in the table. Table does not include multiple service line connections, main extensions, or plan review services.
- 2) Table is for standard meter installation and is not applicable to sub-metering.
- 3) Meters over 2-inch size are not shown and are not likely needed for Urban Agriculture applications.
- 4) System Equity Fee AND CAP Fee will be assessed on any new meter installation (even at existing taps) if the tap was previously not assessed these fees. This will result in total installation cost greater than is shown in the table.
- 5) Table does not include customer-installed piping and appurtenances.

Table 3 below shows possible installation costs for Dual-Metering, if approved.

Table 3
Dual-Meter Installation Matrix
Expected Start-Up Costs (1)

Meter Size	Installation Fee		System Equity Fee (2)	CAP Fee (2)	Back-flow Permit	Totals
	Type	Cost				
5/8 "	Existing Tap Developer install	359.00	0	0	\$82.00	\$ 441.00
	Existing Tap TW Install	438.00	0	0	\$82.00	\$ 520.00
	Tap w/pavement	Not Applicable – New Tap not needed				
	Tap w/o pavement	Not Applicable – New Tap not needed				
3/4 "	Existing Tap Developer install	383.00	0	0	\$82.00	\$ 465.00
	Existing Tap TW Install	462.00	0	0	\$82.00	\$ 544.00
	Tap w/pavement	Not Applicable – New Tap not needed				
	Tap w/o pavement	Not Applicable – New Tap not needed				
1 "	Existing Tap Developer install	428.00	0	0	\$82.00	\$ 510.00
	Existing Tap TW Install	527.00	0	0	\$82.00	\$ 609.00
	Tap w/pavement	Not Applicable – New Tap not needed				
	Tap w/o pavement	Not Applicable – New Tap not needed				
1-1/2"	Existing Tap Developer install	634.00	0	0	\$82.00	\$ 716.00
	Existing Tap TW Install	778.00	0	0	\$82.00	\$ 860.00
	Tap w/pavement	Not Applicable – New Tap not needed				
	Tap w/o pavement	Not Applicable – New Tap not needed				
2 "	Existing Tap Developer install	755.00	0	0	\$82.00	\$ 837.00
	Existing Tap TW Install	899.00	0	0	\$82.00	\$ 981.00
	Tap w/pavement	Not Applicable – New Tap not needed				
	Tap w/o pavement	Not Applicable – New Tap not needed				

Notes:

- 1) Meters over 2-inch size not shown and are not likely needed for Urban Agriculture applications.
- 2) Table assumes that the existing billing meter was previously assessed the System Equity Fee, as well as the CAP Fee. These fees may be applicable if not previously applied to the existing tap.
- 3) Table does not include customer-installed piping and appurtenances.

Estimated payback period for installation of a Dual-Meter

Dual-Metering Purpose for Urban Agriculture

The reason for dual-meter installation is to accurately determine how much of the water used should be assessed wastewater charges.

In addition to the sub-meter installation costs provided in Table 3, there are additional periodic water fees that will be incurred and must be offset by wastewater savings, in order for the sub-meter installation to be cost effective for customers. Those fees include the monthly meter service charge, as well as the yearly backflow inspection. All other periodic rates related to water use remain the same.

Table 4 shows the monthly meter service charge and backflow inspection charges that must be offset for the installation to be cost effective for customers.

Table 4
Periodic Water Fees that need to be Off-set to Justify Sub-Metering

Meter Size	Monthly Service Charge	Yearly Backflow Inspection Fee (2)	Monthly Average Cost	Yearly
5/8"	8.27	75.00	14.52	\$174.24
3/4"	10.92	75.00	17.17	\$206.04
1"	16.23	75.00	22.48	\$269.76
1-1/2"	29.49	75.00	35.74	\$428.88
2"	45.41	75.00	51.66	\$619.92

Notes:

- 1) Costs do not include repair of backflow assemblies if they do not pass the yearly testing.
- 2) Backflow Inspection Fees Range from about \$50-\$100, depending on the firm hired for the work. An average of \$75 is used in this table, for comparison purposes.

Wastewater fees to be offset

Pima County Wastewater Department has various wastewater fees based on residential uses, as well as various types of businesses. The County calculates its fees as follows:

Monthly Charges = (Volume of Wastewater X Wastewater Rate) + Monthly Service Fee

For purposes of this document this equation is:

Equation #1: Monthly Charges = (Volume of Wastewater X 3.523\$/ccf) + \$12.63

Wastewater Rate = 3.523\$/ccf as of July 2013

Monthly Wastewater Service Fee = \$12.63

Wastewater Offset Needed for One Year Payback

Customer Payback in one year is represented in Table 5, below.

**Table 5
Average Monthly Wastewater Offset
Required for 1 year Payback Period**

Meter Size	Installation Type (See Table 3)	Installation Cost (See Table 3)	Monthly Equivalent (/12)	Monthly Avg Periodic Fee (See Table 4)	Total Monthly Charges (Offset Required)	Volume of Wastewater Offset Needed (eq #1)
5/8 “	Existing Tap Developer install	\$ 441.00	36.75	14.52	\$51.27	10.96 ccf
	Existing Tap TW Install	\$ 520.00	43.33	14.52	\$57.85	12.83 ccf
3/4 “	Existing Tap Developer install	\$ 465.00	38.75	17.17	\$55.92	12.29 ccf
	Existing Tap TW Install	\$ 544.00	45.33	17.17	\$62.50	14.16 ccf
1 “	Existing Tap Developer install	\$ 510.00	42.50	22.48	\$64.98	14.85 ccf
	Existing Tap TW Install	\$ 609.00	50.75	22.48	\$73.23	17.20 ccf
1-1/2“	Existing Tap Developer install	\$ 716.00	59.67	35.74	\$95.41	23.50 ccf
	Existing Tap TW Install	\$ 860.00	71.67	35.74	\$107.41	26.90 ccf
2 “	Existing Tap Developer install	\$ 837.00	69.75	51.66	\$121.41	30.88 ccf
	Existing Tap TW Install	\$ 981.00	81.75	51.66	\$133.41	34.28 ccf

Wastewater Offset Needed for a Three Year Payback
 Customer Payback in three years is represented in Table 6, below.

Table 6
Average Monthly Wastewater Offset
Required for 3 year Payback Period

Meter Size	Installation Type (See Table 3)	Installation Cost (See Table 3)	Monthly Equivalent (/36)	Monthly Avg Periodic Fee (See Table 4)	Total Monthly Charges (Offset Required)	Volume of Wastewater Offset Needed (eq #1)
5/8 “	Existing Tap Developer install	\$ 441.00	12.25	14.52	\$26.77	4.01 ccf
	Existing Tap TW Install	\$ 520.00	14.44	14.52	\$28.96	4.64 ccf
3/4 “	Existing Tap Developer install	\$ 465.00	12.92	17.17	\$30.09	4.96 ccf
	Existing Tap TW Install	\$ 544.00	15.11	17.17	\$32.28	5.58 ccf
1 “	Existing Tap Developer install	\$ 510.00	14.17	22.48	\$36.65	6.82 ccf
	Existing Tap TW Install	\$ 609.00	16.91	22.48	\$39.39	7.60 ccf
1-1/2“	Existing Tap Developer install	\$ 716.00	19.89	35.74	\$55.63	12.21 ccf
	Existing Tap TW Install	\$ 860.00	23.89	35.74	\$59.63	13.34 ccf
2 “	Existing Tap Developer install	\$ 837.00	23.25	51.66	\$74.91	17.68 ccf
	Existing Tap TW Install	\$ 981.00	27.25	51.66	\$78.91	18.81 ccf

Figure 1

