

Urban Agriculture in other Communities

Cleveland Water

Minneapolis Water

San Francisco Public Utilities

Portland Water Bureau

Presented to:

Urban Agriculture Subcommittee of CWAC

December 10, 2012



Cleveland Water



- Hydrants utilized as a source of irrigation water for community gardens
- Hydrant connection must be removed/replaced daily
- Hydrant permits required – various types/costs
- Sites greater than 2 acres are limited to 5 years of hydrant permits
- Not metered
- No backflow
- Costs
 - Less than 2 acres = 2 MCF Estimate = \$92.80/season
 - Greater than 2 acres – 4 MCF Estimate = \$146.60/season

Minneapolis Water



- Seasonal permits for hydrant connection
- Meter & backflow only for gardens **over** 5,000sf
- Backflow only for gardens **under** 5,000sf
- Customer locking device required
- Fees
 - \$25 permit
 - \$75 seasonal water up to 24 units
 - 1 unit = 750 gallons
 - \$3.20/unit over 24 units used (standard rate)

San Francisco Public Utilities

- Temporary Meter Grant Program for Community Garden Irrigation
- Standard Water Rates are Applicable



San Francisco
Water
Power
Sewer

Portland Water Bureau

- Fire Hydrants used for some Urban Agriculture
- Where City properties are used for Urban Agriculture, General Fund may be used to subsidize permanent meter installation
- Standard Water Rates Applicable



Other Communities - Synopsis

- Similar Water rate concerns
- Utilities surveyed did not have special water rates for community gardens
- Some Utilities mitigate permanent meter installation costs by using fire hydrants

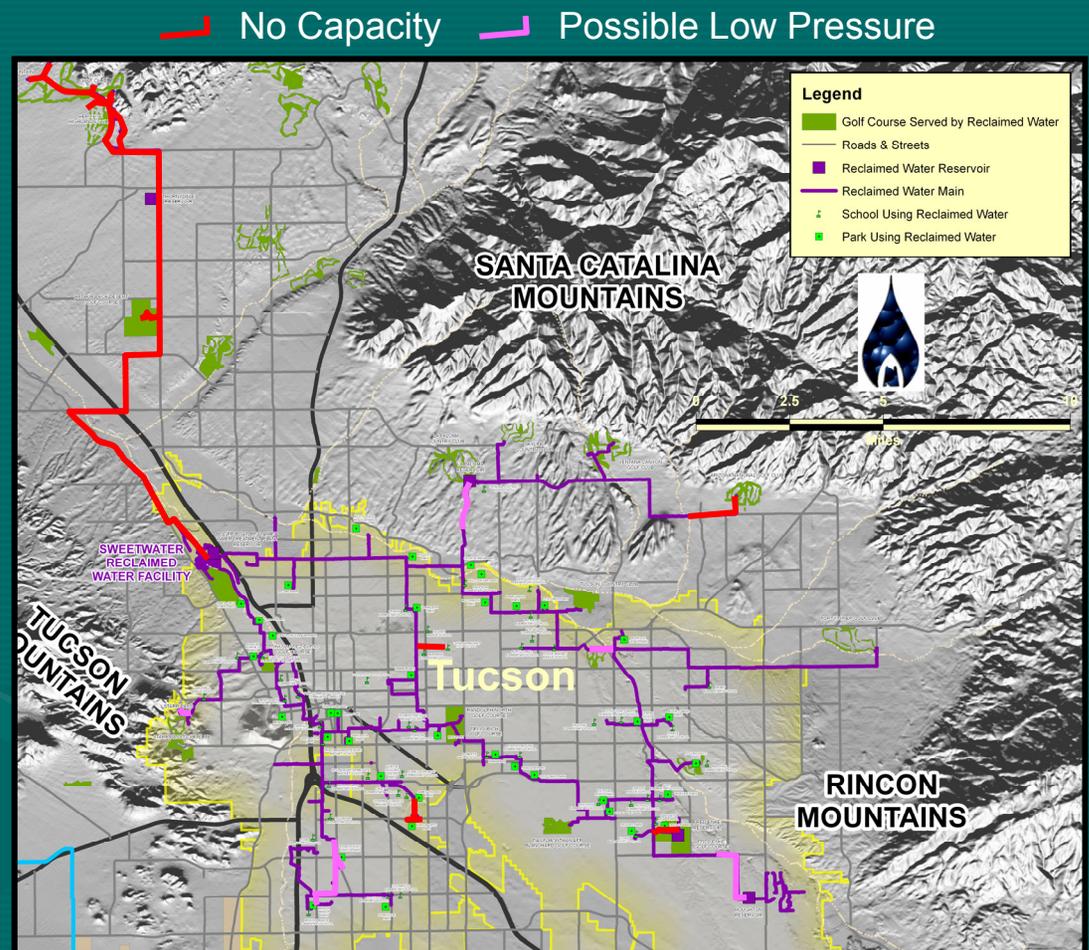


Role of Reclaimed Water and Backflow Requirements



Reclaimed System

- Can be used for community gar irrigation
- User must be less than 1/4 mile away from system main for cost effective connection
- Areas of the system are over committed
- Areas of the system are low pressure (need booster pumps)



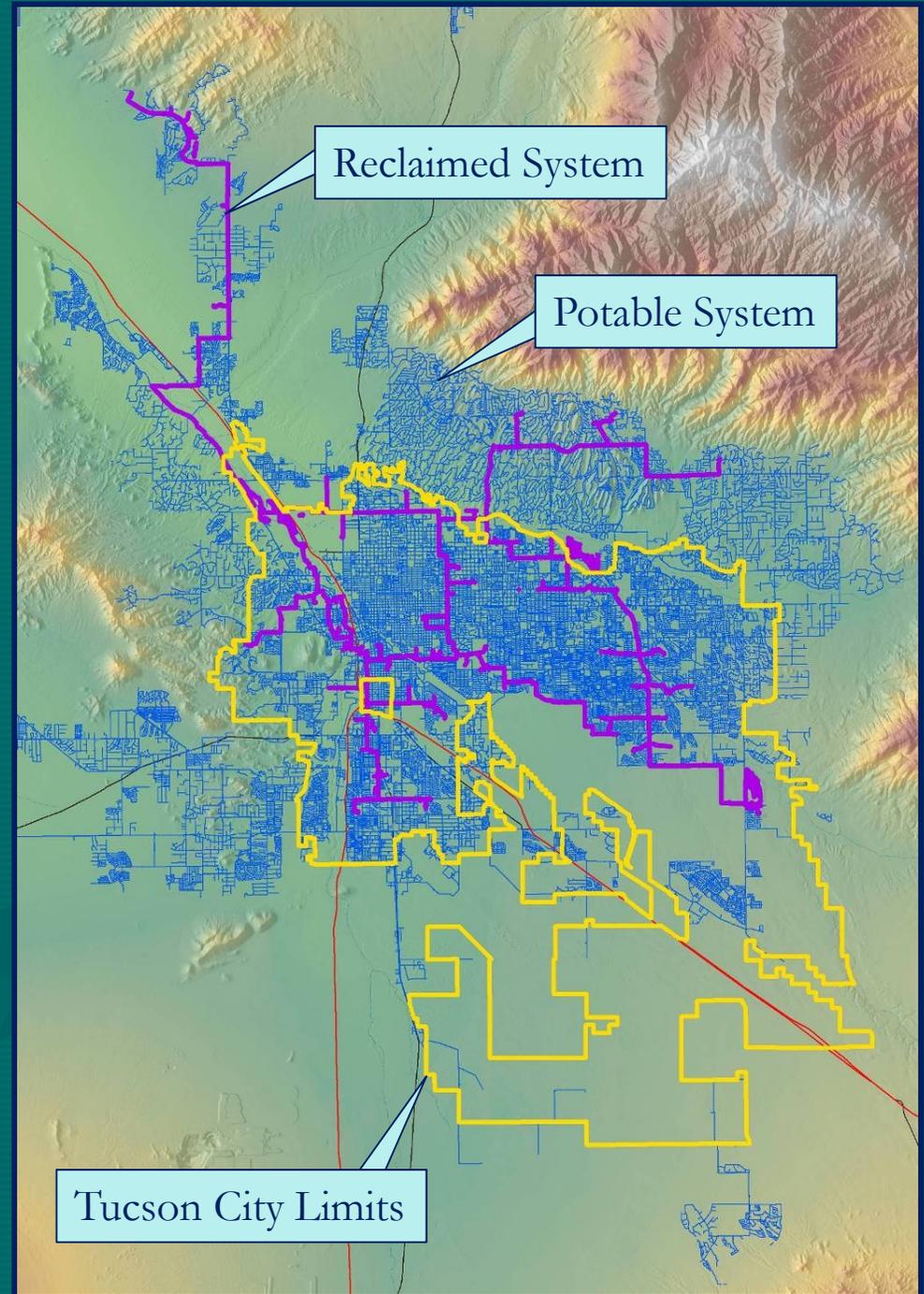
Public Considerations when using reclaimed water

- Ensure users understand use limits (signed user agreement)
- Spray irrigation (on vineyards & fruit trees)
- Drip irrigation (on vegetable gardens)
- Hose bibs not allowed - Hose connections on a reclaimed water line must be made through a quick coupler and not a standard hose bib.



Potable System

- Can be used in lieu of reclaimed water
- Available in more areas than reclaimed
- Backflow Required for irrigation systems



Backflow Requirements for Potable Irrigation

- Required for all irrigation meters
- Required for all hydrant connections
- Required for most commercial operations
- Required for internal protection on any irrigation system (per plumbing code)
- Backflow Assemblies Protect Cross Connections from contaminating the public potable water system

What is a Cross-Connection?

An unprotected actual or potential connection between a potable or reclaimed water system and any source through which

- contaminated water
- industrial fluids
- gas
- or other harmful substances

can enter the distribution systems

Potable Water System



Cross-Connection

Rain Water Harvesting

How Does Backflow Occur?

Backsiphonage:

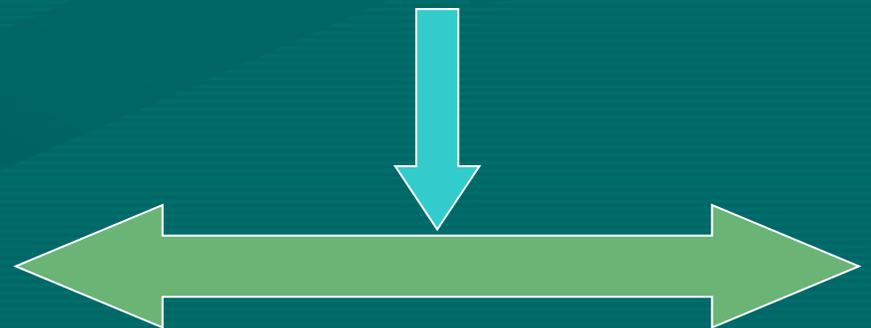
Reduced pressure in the distribution system

- Line Breaks
- Over drafting
- Garden hose sprayer

Backpressure:

Increased pressure from a non-potable source into the Distribution system

- Pump



Primary Types of Backflow Prevention Assemblies

Pressure Vacuum Breaker
Assembly (PVB)



Reduced Pressure Principle
Assembly (RPA)



Typical Fire Hydrant Meter & Backflow Assembly

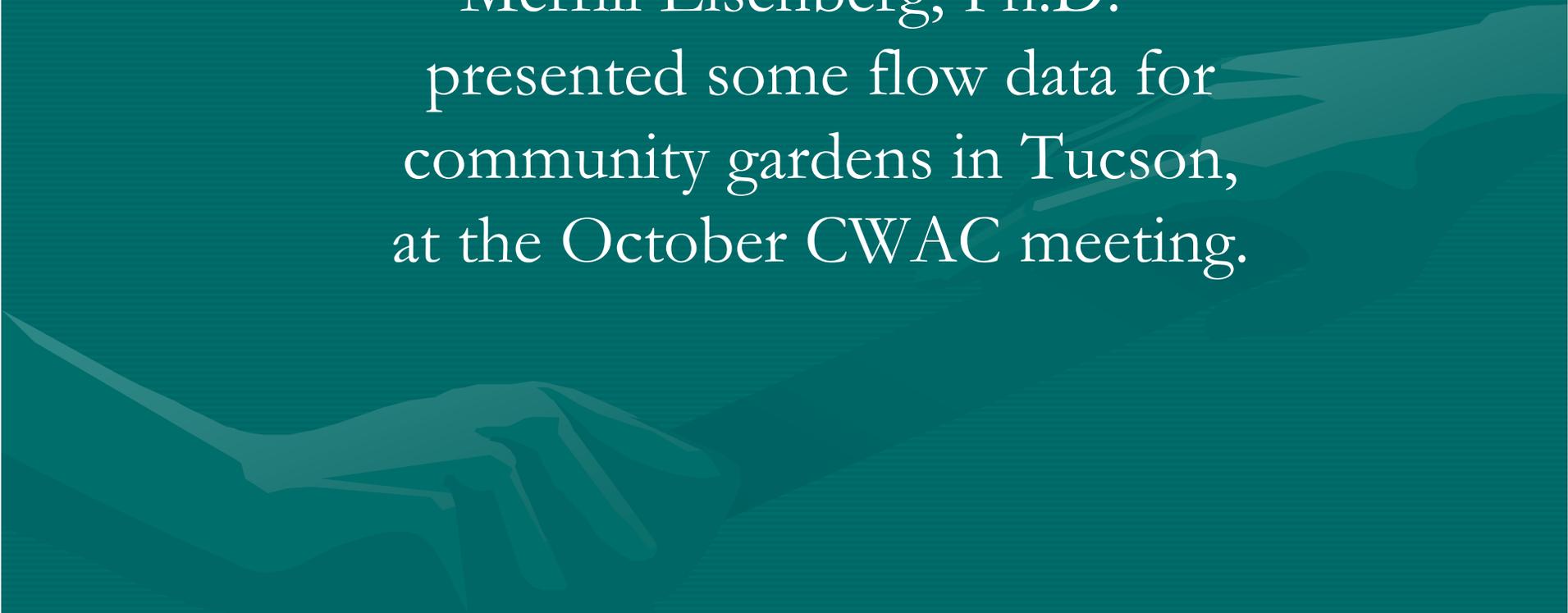


Fees for Backflow Assemblies

- Backflow Assembly Installation Permit (\$82.00)
- 4-Day Fee for noncompliant backflow assemblies (\$82.00)
- Turn off fee for assemblies not in compliance after 4-Day Notice expires (\$82.00)
- Monthly Testing is required for all Hydrant Assemblies (varies with testing company)
- Annual Backflow Assembly Test (varies with testing company)

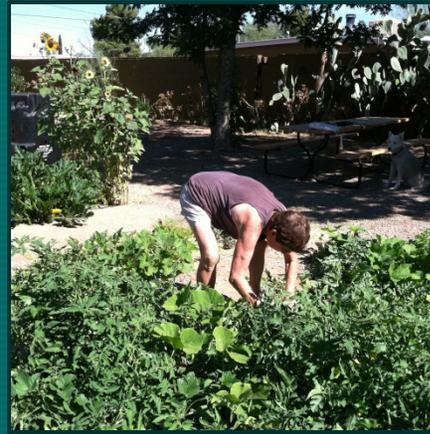
What are the Costs a Community Garden Could Expect?

Merrill Eisenberg, Ph.D.
presented some flow data for
community gardens in Tucson,
at the October CWAC meeting.

A faint, semi-transparent image of two hands shaking is visible in the background, centered behind the text. The hands are rendered in a light teal color, matching the slide's background.

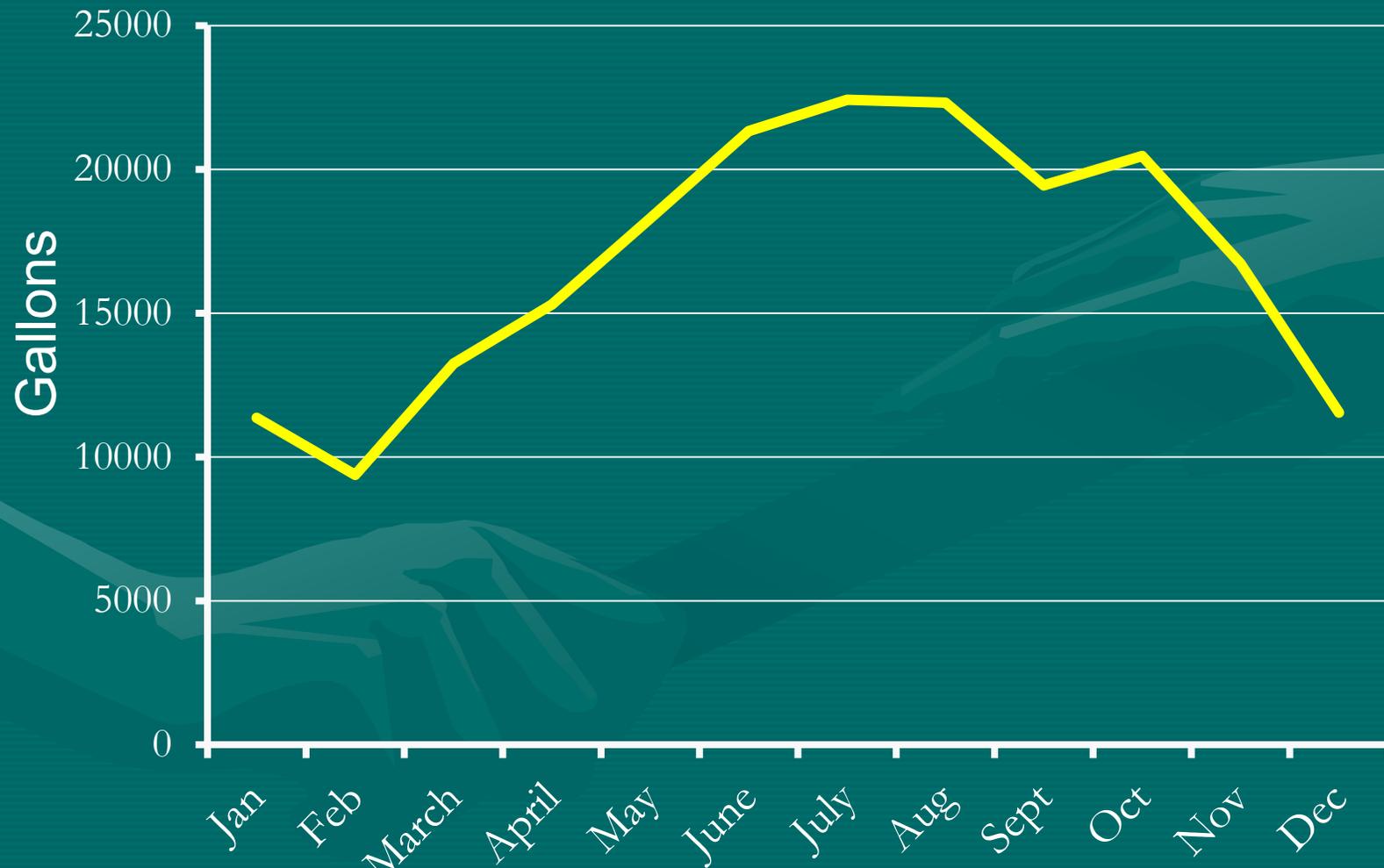
Planning for Urban Agriculture in Tucson, Arizona

Merrill Eisenberg,
Ph.D.
Activate Tucson



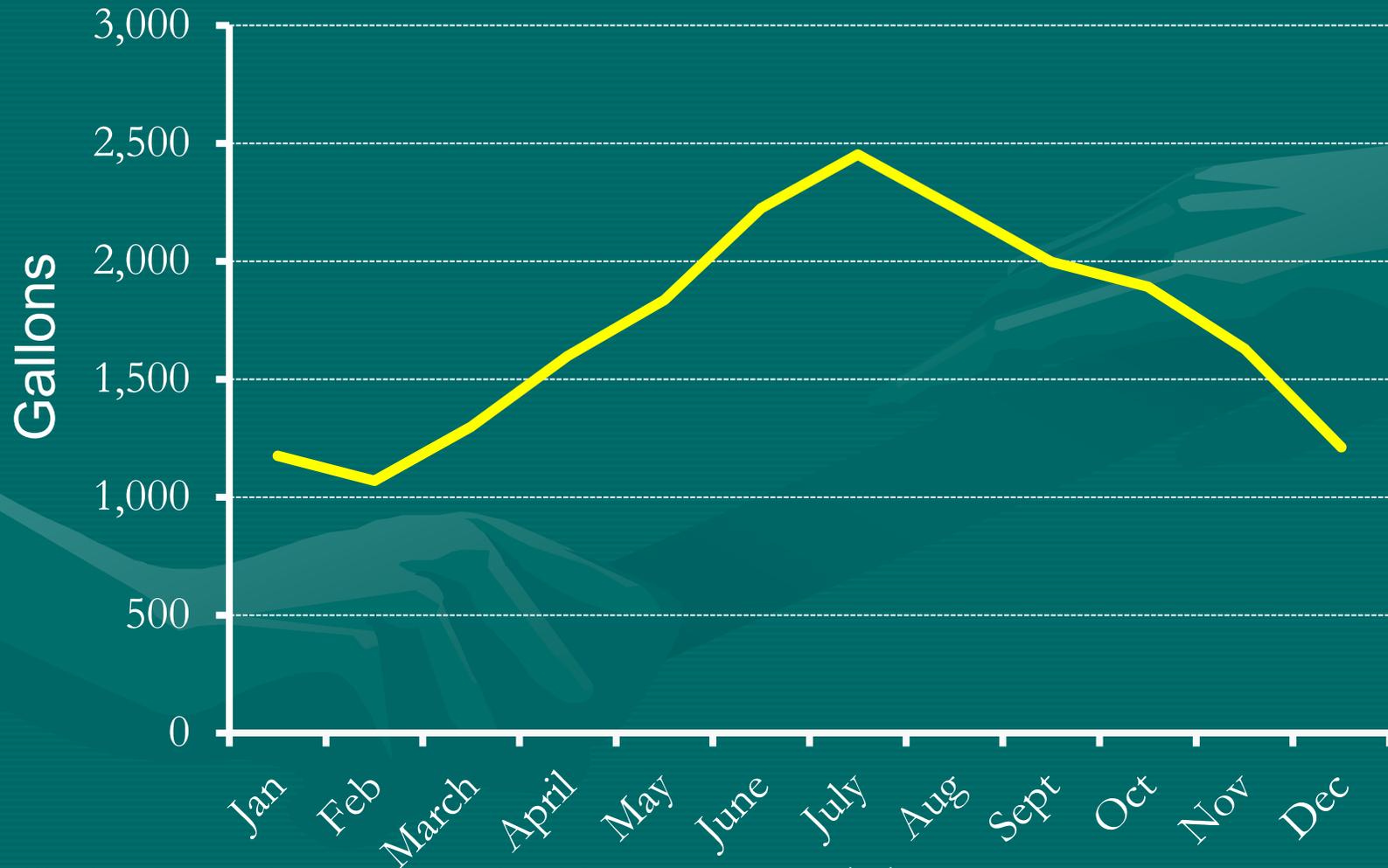
Presentation to Tucson
Water 10/3/12

Community Gardens of Tucson Water Use Data 6 gardens 2001-2009



Merrill Eisenberg, Ph.D. Presented to Tucson Water 10/3/12

Average gallons used per 100 sq ft



Possible Average Use in Tucson

- Based on 6 Gardens with a peak summer use of 22,500 gallons per month the average garden uses 3,750 gal/month or 5 ccf
- Based on the average use per 100 sf for the 6 sites, the average size is 900 sf.
- Assume a garden only needs a 5/8 inch meter to supply it's peak flow requirements

Typical 5/8" Meter Install Cost

Potable or Reclaimed Water	
Meter Installation	\$359.00 - \$2,414.00
Additional Fees/Costs For Potable Water	
Backflow Permit	\$82.00
System Equity Fee	\$1,311.00
CAP Water Resource	\$200.00
Other Possible Installation Costs	
Main Extension, Isolated System Fee, Plan Review Fee, Backflow Installation, irrigation system	

Peak Month Billing Rates @ 5ccf

Potable		Reclaimed	
Service Charge	\$8.27	Service Charge	\$6.66
Usage Rate 2.25\$/ccf	\$11.25	Reclaimed Rate 1.83\$/ccf	\$9.15
CAP 0.36\$/ccf	\$1.80	CAP 0\$/ccf	\$0
Conservation Fee 0.07\$/ccf	\$0.35	Conservation Fee 0\$/ccf	\$0
Monthly Potable	\$21.67	Monthly Reclaimed	\$15.81

Tucson Water Hydrant Meters and Backflow Assemblies

- Intended for Construction Water
- Size = 2.5 inch diameter (500+gpm)
- Flow/Size too large for Garden Hose

Costs for construction meter:

- Deposit = \$1,586.00 (refundable when returned)
- Monthly Rental = \$66.64/month
- Standard water rates also applied

Considerations:

- Availability and Location of Hydrants
- Need to 're-tool' for garden hose use
- Theft



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Questions?



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