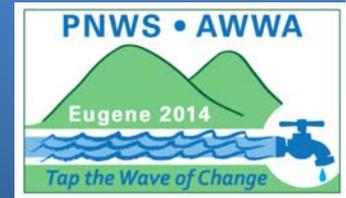




City of Pasco – A Tale of Two Waters



May 8, 2014

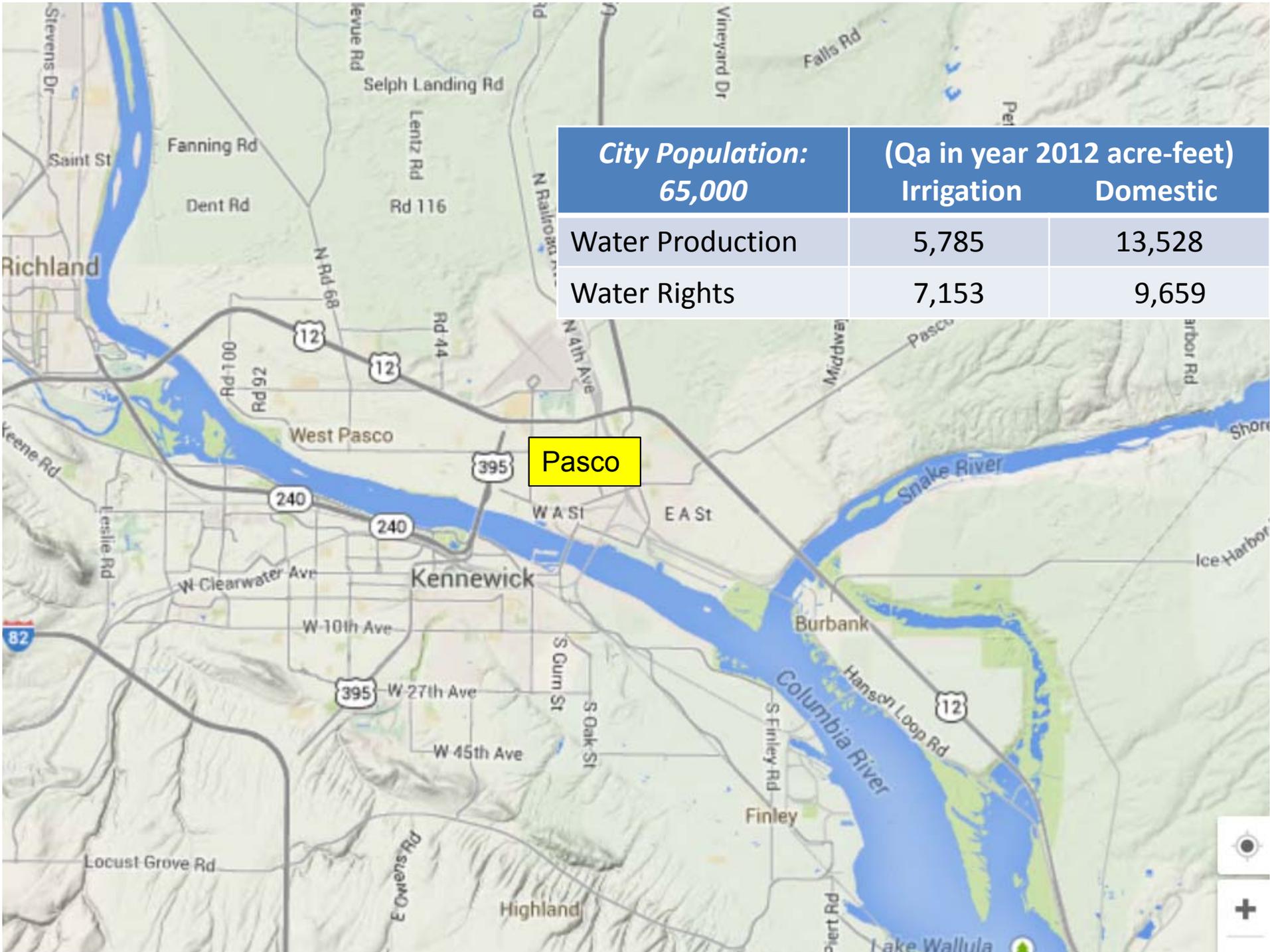
Presented by:
Chris Uber, P.E.
Senior Vice President
Murray, Smith &
Associates, Inc.



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Pasco



Pasco

The Two Plans

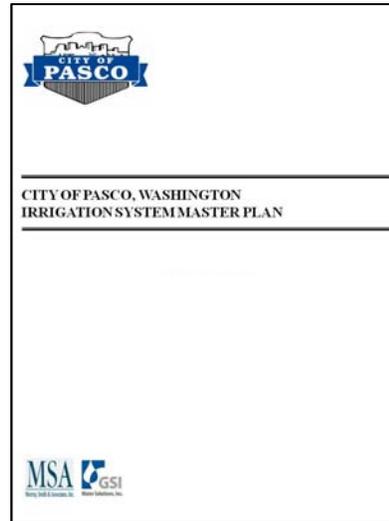
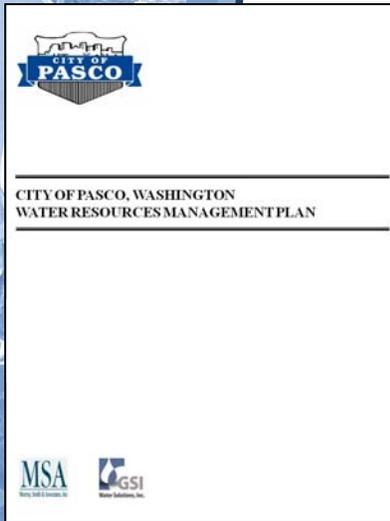
Direct and plan the most efficient uses of the City's existing water resource assets and its domestic and irrigation water rights.

□ **Scope:**

- Evaluate water rights and water conservation measures
- Assess provision of service through strategies development and code evaluations
- Document analyses, findings, options, and recommendations

□ **Scope**

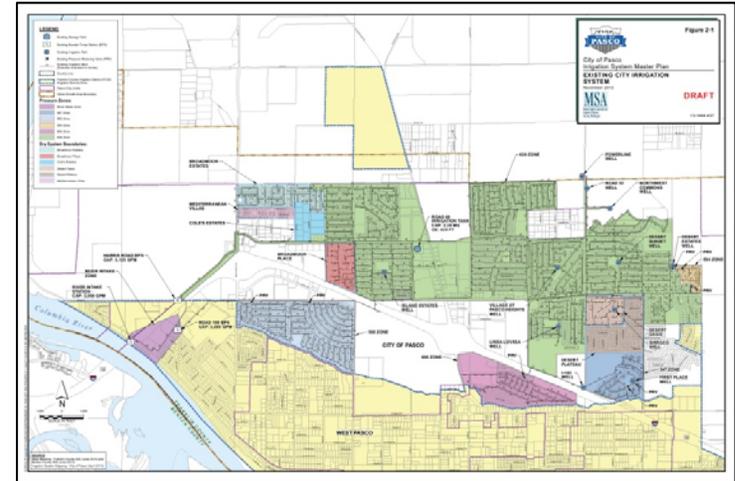
- Document existing system and water rights
- Analyze system
 - Hydraulic
 - Supply
 - Storage
 - Well performance and capacity
 - Water rights
- Develop findings and recommendations
- Prepare near-term and long-term capital improvement plan



Irrigation System Master Plan

□ Existing System

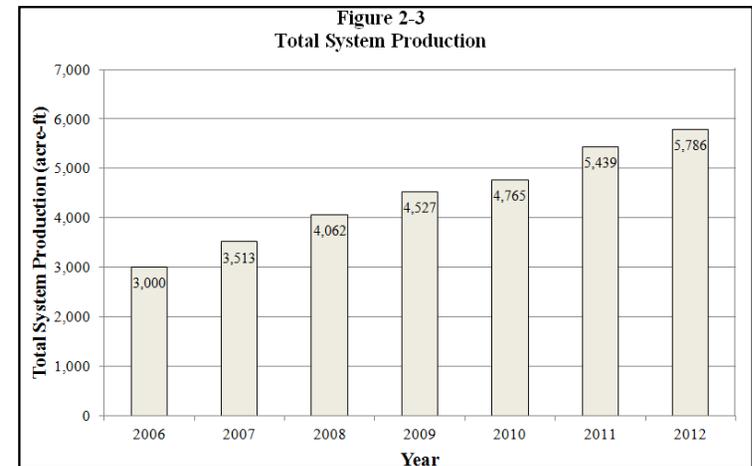
- 134 miles of piping
- 11 groundwater wells and one river intake
- 1 storage reservoir/2 booster stations
- 5,434 residential connections
- Dry systems



Subdivision Name	Number of New Connections	Estimated Acreage (ac)
Broadmoor Estates	304	90.67
Broadmoor Place	233	62.33
Desert Oasis	170	54.17
Desert Plateau	304	108.48
Total	1,011	315.65

□ Analysis

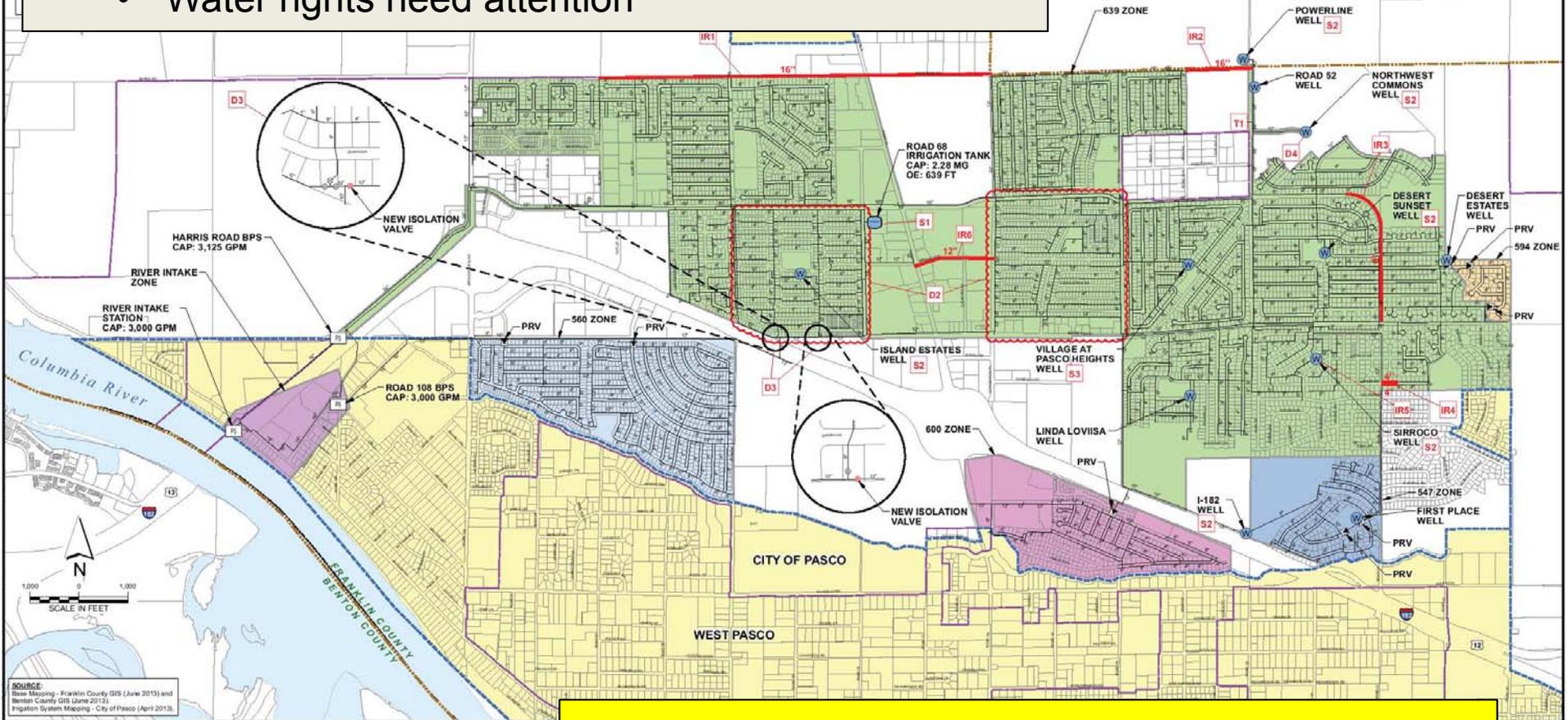
- Set flow and pressure performance measures
- Calibrate hydraulic model
- Demand scenarios, existing and future
- Storage capacity
- Well assessments



Findings

- Pressures adequate
- Storage is adequate
- High velocity flow as several locations
- Biofouling/plugging found at a number of wells
- Water rights need attention

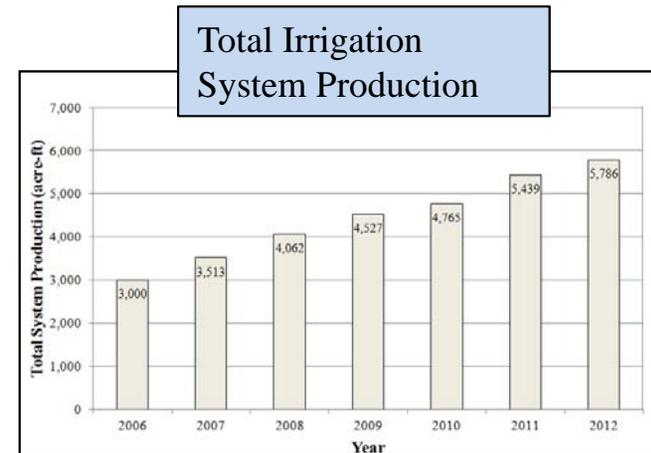
CITY OF PASCO
City of Pasco
Irrigation System Master Plan
PROPOSED IRRIGATION SYSTEM IMPROVEMENTS
November 2013
MSA
Mark, Keith & Associates, Inc.
Engineers, Planners, Architects, Surveyors
13-1444.407



Irrigation System Improvement Plan

Water Resources Plan Proposed Strategy Elements

- ❑ **Water rights**
- ❑ **Minimize the use of domestic water for irrigation**
- ❑ **Promote reduced irrigation water use through landscaping practices**
- ❑ **Expand regional coordination with other irrigation system**
- ❑ **Large user outreach**
- ❑ **Demand side management rate setting**



Historical Water System Production Summary

Year	Domestic Production		Irrigation Production	
	MG	Acre-ft	MG	Acre-ft
2006	4,048.3	12,423.8	977.6	3,001.4
2007	4,190.5	12,860.2	1,144.6	3,513.9
2008	4,206.3	12,908.8	1,323.8	4,063.2
2009	4,437.0	13,616.5	1,475.2	4,526.6
2010	4,349.4	13,347.8	1,552.6	4,766.0
2011	4,391.8	13,477.8	1,772.4	5,438.1
2012	4,408.3	13,528.5	1,885.3	5,784.9

Water Rights

- ❑ **Securing sufficient rights and supplies for the continued and long-term operation of both systems.**
 - Groundwater
 - Surface water
 - Additional raw water acquisition
- ❑ **Production and supply improvements**
 - Well field yield analyses
 - Well production performance improvements
- ❑ **Recommend continuing policies that bring new water rights under City control**
 - Water rights are deeded to the City with new developments
 - Require compensation for City purchase of additional raw water supplies



CITY OF PASCO, WASHINGTON
IRRIGATION SYSTEM MASTER PLAN

November 2013



Water Rights – Recommendations

- ❑ **Full cost recovery of purchased raw water**
 - City recently secured an additional 4,500 to 5,000 acre-ft of raw water – Bringing total available to 14,659 acre-ft

**Need: ~14,000
acre-ft**



- ❑ **Complete a groundwater well inventory in the Pasco urban growth boundary**



Maximize Irrigation Water Use For Irrigation Purposes

- ❑ Well field assessments to ensure optimal groundwater well production
- ❑ Where practical complete incremental construction of a dual piping system as part of urban renewal or redevelopment.



Maximize Irrigation Water Use For Irrigation Purposes

- ❑ Recommend additional irrigation system development expansion where possible and practical.
 - Dual water systems for new subdivision developments to include redevelopment, major remodels, and proposed landscaping upgrades in developed neighborhoods.
 - Consider the expansion of this approach to ultimately require all buildings and properties in the City to install separate domestic and irrigation water systems.
 - Consider making deduct meters mandatory for commercial and industrial customers using domestic water for irrigation purposes.
 - Use incentives to promote the program if deemed beneficial.



Maximize Irrigation Water Use For Irrigation Purposes

- ❑ Recommend water rights be included in all new developments brought into the City.



- ❑ Recommend coordination with City Planning department to estimate the number and location of additional irrigation systems that are anticipated within the next 5, 10, and 20 years.

Promote reduced irrigation water use through landscaping practices

- ❑ Improve water efficiency achieving similar aesthetic and turf performance levels with reduced water use.
 - Recent turf grass test mix, conducted by the City, reduced water use by approximately 30%
 - Confirm results over larger and diverse pilot test area
 - Consider use of the new mix with local institutional, commercial, and residential landscaping.
- ❑ Consider a comprehensive change to local turf grass specification on all new developments as well as landscaping and redevelopment work.
- ❑ Recommend use of advanced irrigation system controllers and nozzles for City facilities and consider program for other City users



Promote reduced irrigation water use through landscaping practices

- ❑ Recommend consideration of a xeriscaping development pilot test plan for City controlled properties currently using domestic water for irrigation proposed.
- ❑ Consider modification of current landscape requirement policy



Expand Regional Coordination With Other Irrigation Systems

- ❑ There may be advantages for both the City and FCID in developing a more collaborative approach while meeting the water needs of all customers.
- ❑ Business practices and operational improvements may be created through an improved working and business relationship that result in more optimal use of local and regional water resources.
- ❑ Recommend that City initiate formal dialogue with FCID to examine the benefits of a closer, more cooperative relationship



Large User Outreach

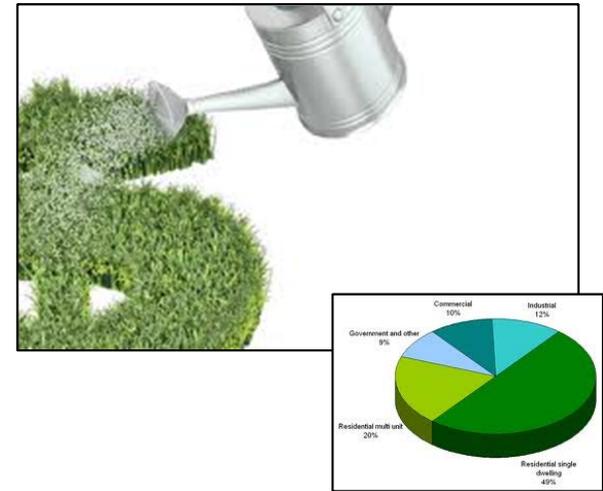
- ❑ As part of its obligation under the Quad City Water Right, the City of Pasco agreed to perform audits of large volume water users.
- ❑ Consider expanding this program and adding additional users to the audit program.



Demand Side Management Rate Setting

The City Council opted not to include this strategy in the Final Report

- ❑ The City has historically updated its water rates on a bi-annual basis
- ❑ Recommend consideration of conservation or incentive based pricing structures intended to shape user demands
- ❑ Use goals that achieve targeted reductions of domestic water that is currently being used for irrigation purposes.
- ❑ Recommend completing a cost/benefit/use analysis to assess various pricing and rate structures, customer responses and potential water use pattern changes.





Conclusion

- ❑ ***Both Plans are complete and adopted***
- ❑ ***Council is currently developing an Action Plan to implement the 5 selected strategies***

Thank You

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MSA