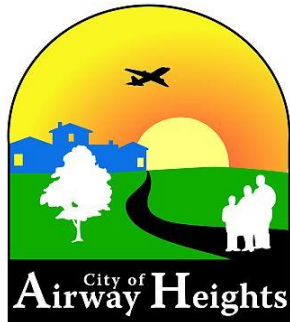


FINDING SOLUTIONS TO WATER RESOURCE ISSUES ON THE WEST PLAINS

Reclaimed Water at Airway Heights





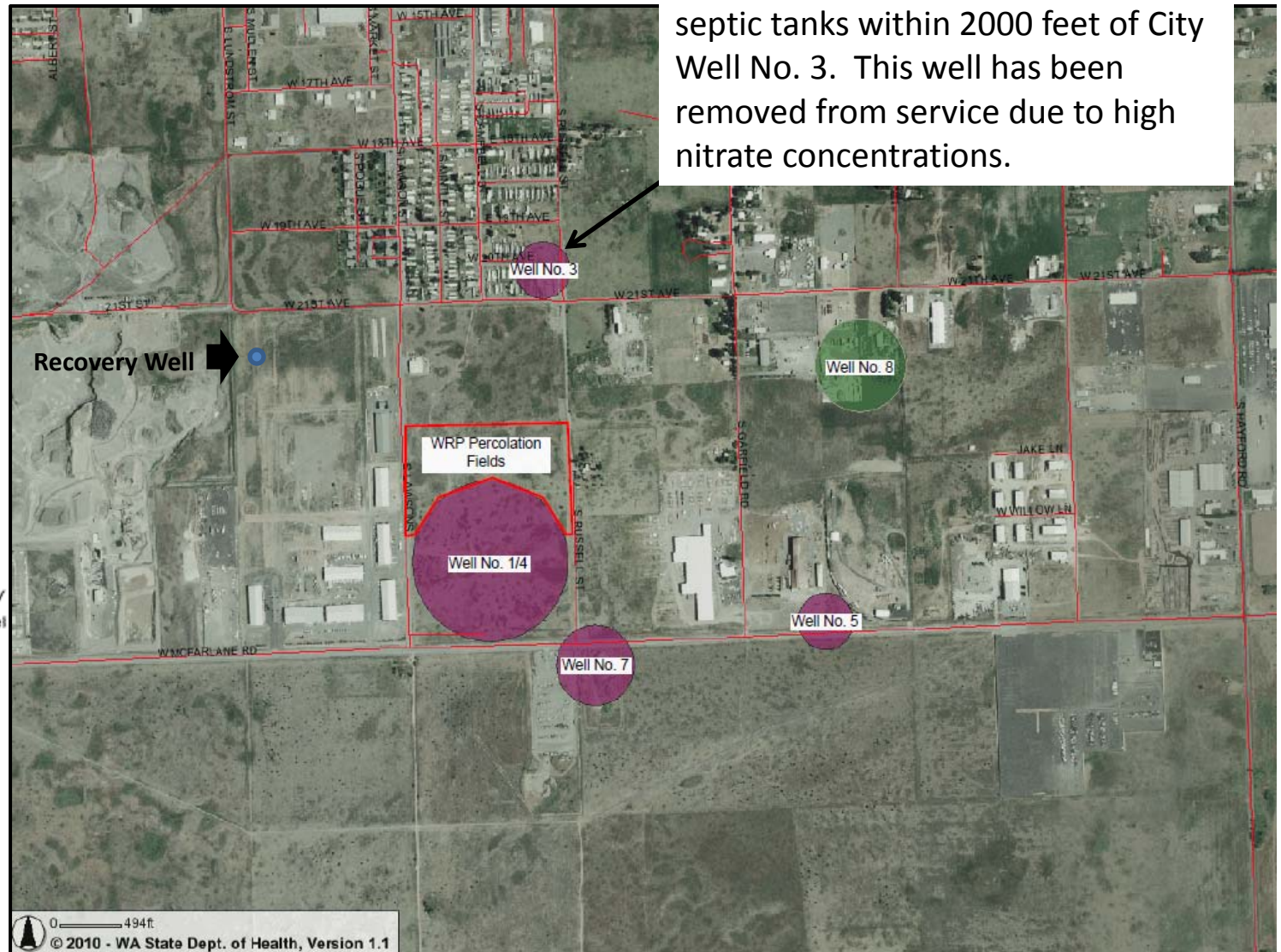
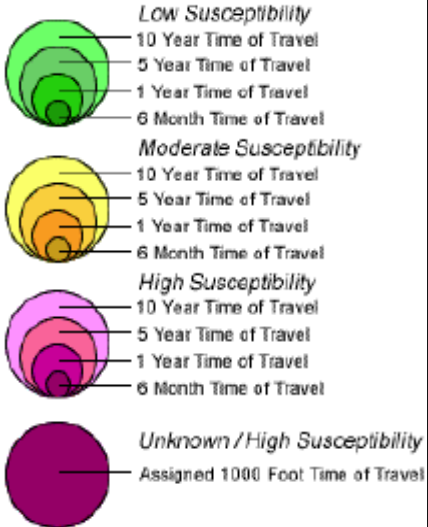
WATER RESOURCE ISSUES IN THE WEST PLAINS

- **Declining Aquifer Levels**
- **Septic Systems Contaminating Drinking Water Wells**
- **Regional Source “Mining” of Aquifers**
- **Multiple Jurisdictions Withdrawing Water**
- **Numerous Exempt Wells Impacted**
- **Difficult Contract Issues for “Outside” Source**
- **Increasing Demand for Water From Regional Growth**
- **Water Leaving Basin Through Wastewater Discharge to River**
- **DOE Demand to Quit Pumping From Largest Producing Well**
- **No New Water Rights Being Issued**

GROUND WATER QUALITY ISSUES

There are approximately 100 - 200 septic tanks within 2000 feet of City Well No. 3. This well has been removed from service due to high nitrate concentrations.

Wellhead Protection Areas





OPTIONS EVALUATED

➤ **Negotiate Additional Water From Intertie**

- Difficult Contract Terms

➤ **Develop Source From Outside of Basin (S-R Aquifer)**

- Water Rights Issues
- Property & Easement Issues
- High Cost

➤ **Aquifer Storage & Recovery**

- High Cost – Pumping Water Twice
- Lack of Recharge Source
- Difficult Permitting (Uncertain “Loss” of Stored Water)

➤ **Reclaiming Water for Reuse/Recovery**

- Public Perception
- High Cost
- Difficult Permitting



OPTION SELECTED

Reclaiming Water for Reuse & Recovery

- Resolved Issues for Both Sewer & Water
- Provided City with Utility Independence
- Provides Opportunity to Eliminate Septic Systems
- Keeps Water in the West Plains
- Provides for Future Growth
- Helps Improve Water Quality in Spokane River
- CLASS "A1" - PLUS Reclaimed Water for New Water Source
- Removed Discharge to Spokane River (303D Listed)
- Full Systems Redundancy for Protecting Public Health

COSTS AND FUNDING

Capital Costs in Millions:

- **Design - \$2.07 million total**
 - \$1.0 M - PWTF
 - \$1.074 M - SRF Loan
- **Construction - \$40.86 million total**
 - \$7.0 M - Public Works Trust Fund (PWTF)
 - \$2.92 M - Centennial Clean Water Fund Grant
 - \$0.17 M - State Revolving Fund (SRF) Loan
 - \$3.35 M - Rural Development
 - \$22.97 M - ARRA Forgivable Principle and Loans
 - \$1.0 M - Legislative Appropriation
 - \$1.87 M - City Capital Fund
 - \$1.58 M - Tribal
- **\$28.47 M - (66% of total cost) in Non-Loan Funding**
- **\$14.46 M - (34% of total cost) In Borrowed Money**



COST IMPACT TO OUR CUSTOMERS

- **First Year Operation and Maintenance Cost** **\$970,230**
- **Annual Treatment Cost With City of Spokane** **\$776,960**
- **Doesn't Include Savings in Water Use** **(\$124,000)**
- **Current Sewer Rate is \$67.50 per ERU per Month.**
- **Current Water Rate is \$13.25 per ERU per Month.**
- **Reuse Water Offered at 25% Discount**
- **Reuse Will Extend Time That New Source(s) Are Needed**

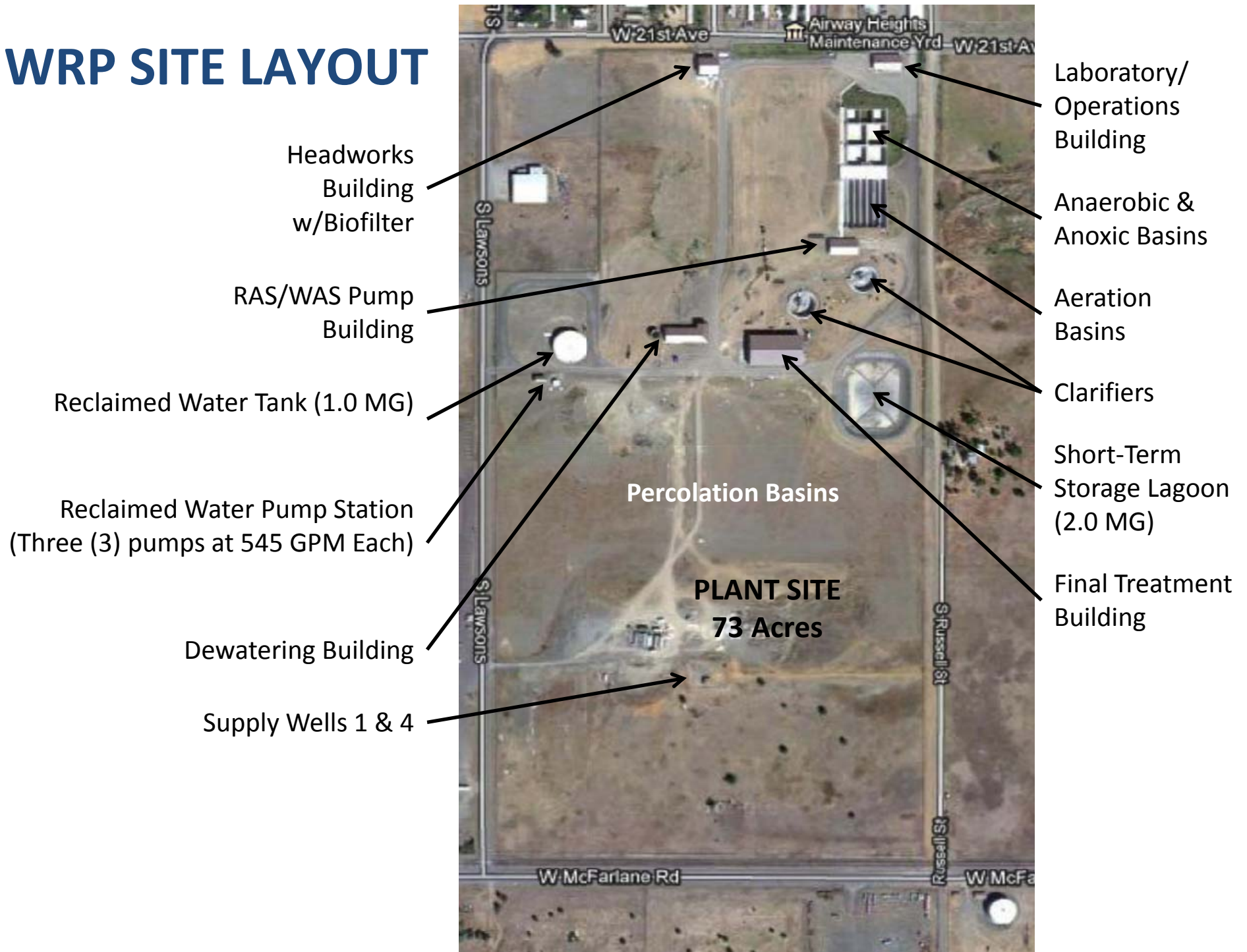
NEW WATER RECLAMATION PLANT

- **Lift Station & Force Main to Plant**
- **Biological Processes**
- **Membrane Filtration**
- **Reuse Water Storage Reservoir (1MG)**
- **Reuse Pump Station**
- **Reuse Distribution Backbone**
- **Subsurface Percolation for Aquifer Recharge**



Excellent Performance Since July 2013

WRP SITE LAYOUT



A photograph of a water treatment plant interior. The scene is filled with industrial equipment, including large green cylindrical tanks, black electric motors, and a complex network of grey and white pipes. In the foreground, there are several control panels with digital displays and various cables connected to them. The background shows more of the facility's infrastructure, including structural beams and overhead lighting.

WATER QUALITY CONCERNS?

FROM THE PLANT TO THE GROUNDWATER

- **BOD:** Non-Detect
- **TSS:** Non-Detect
- **Total Coliforms:** Non-Detect
- **Nitrogen:** Less Than Measured Groundwater Levels

NO CONCERNS HERE!

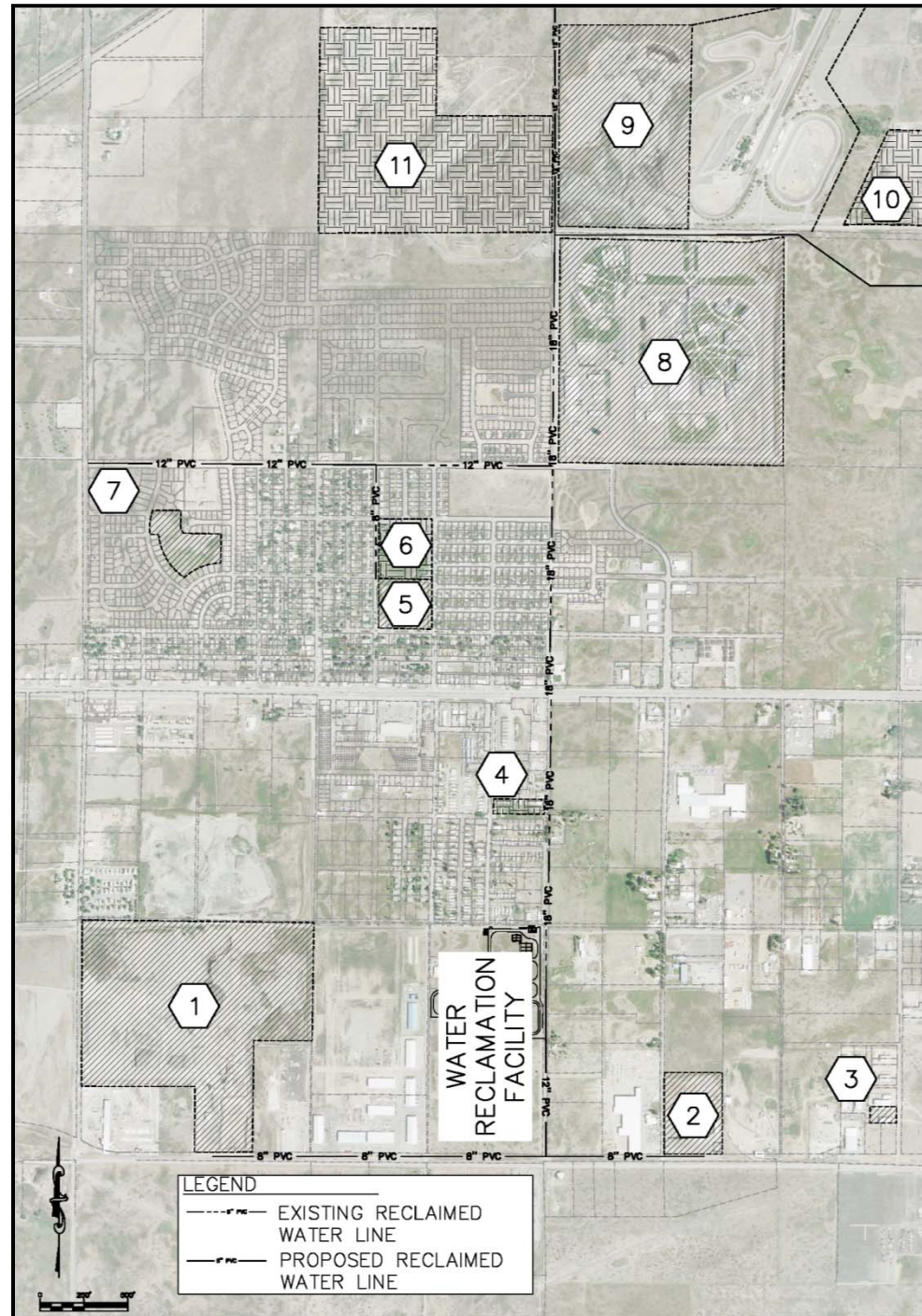
REUSE AND POTENTIAL REUSE CUSTOMER MAP

Current Reuse Customers

- 4 Shorty Combs Park
- 6 Sunset Park
- 10 Kalispel Tribal Development
- 11 Spokane County Off-Road Vehicle Park

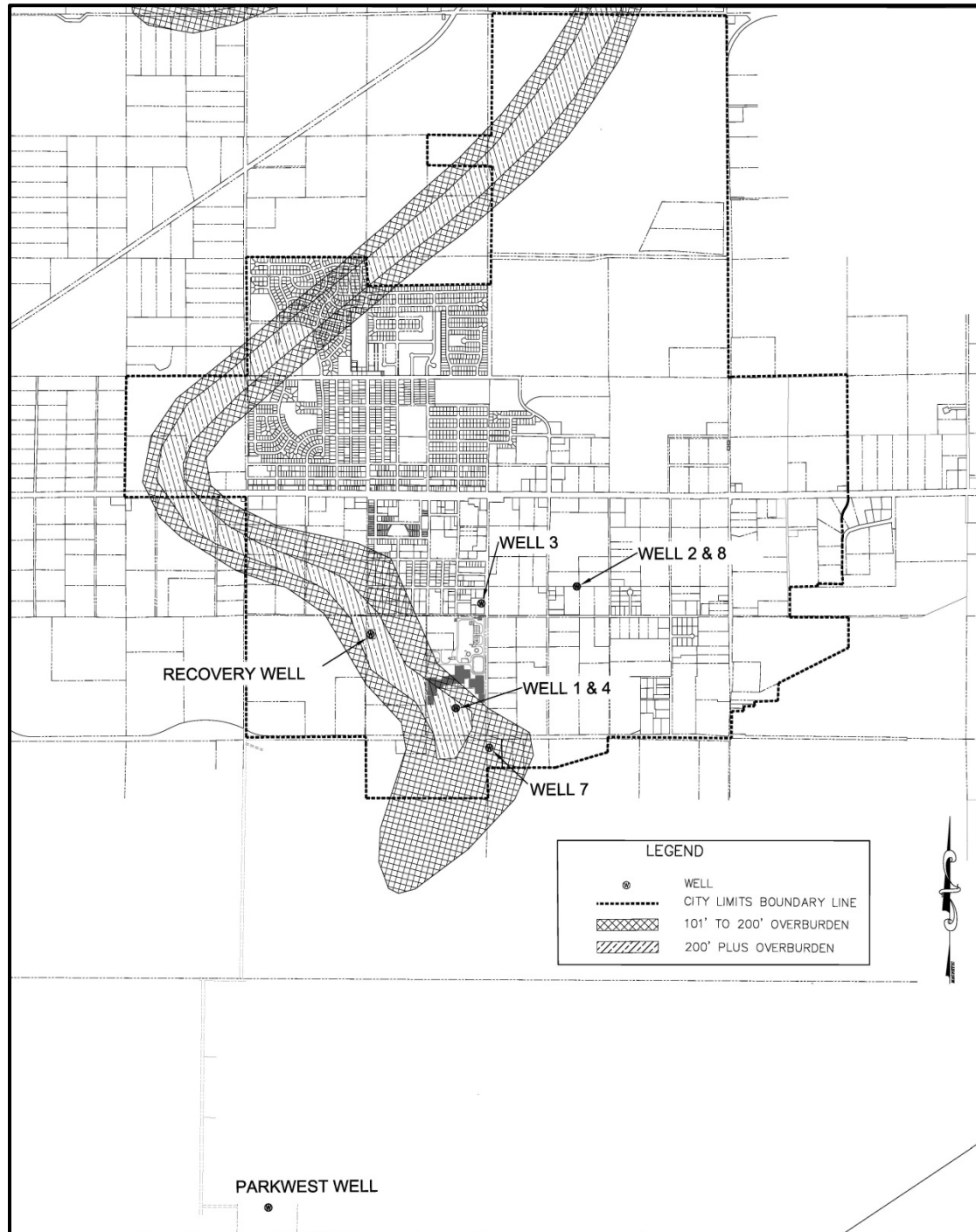
Future Reuse Customers

- 1 Spokane Rock Products
- 2 Spokane Galvanizing Co.
- 3 BMT Metal Fab.
- 5 Sunset School
- 7 Aspen Grove Park
- 8 Department of Corrections
- 9 Inland Asphalt

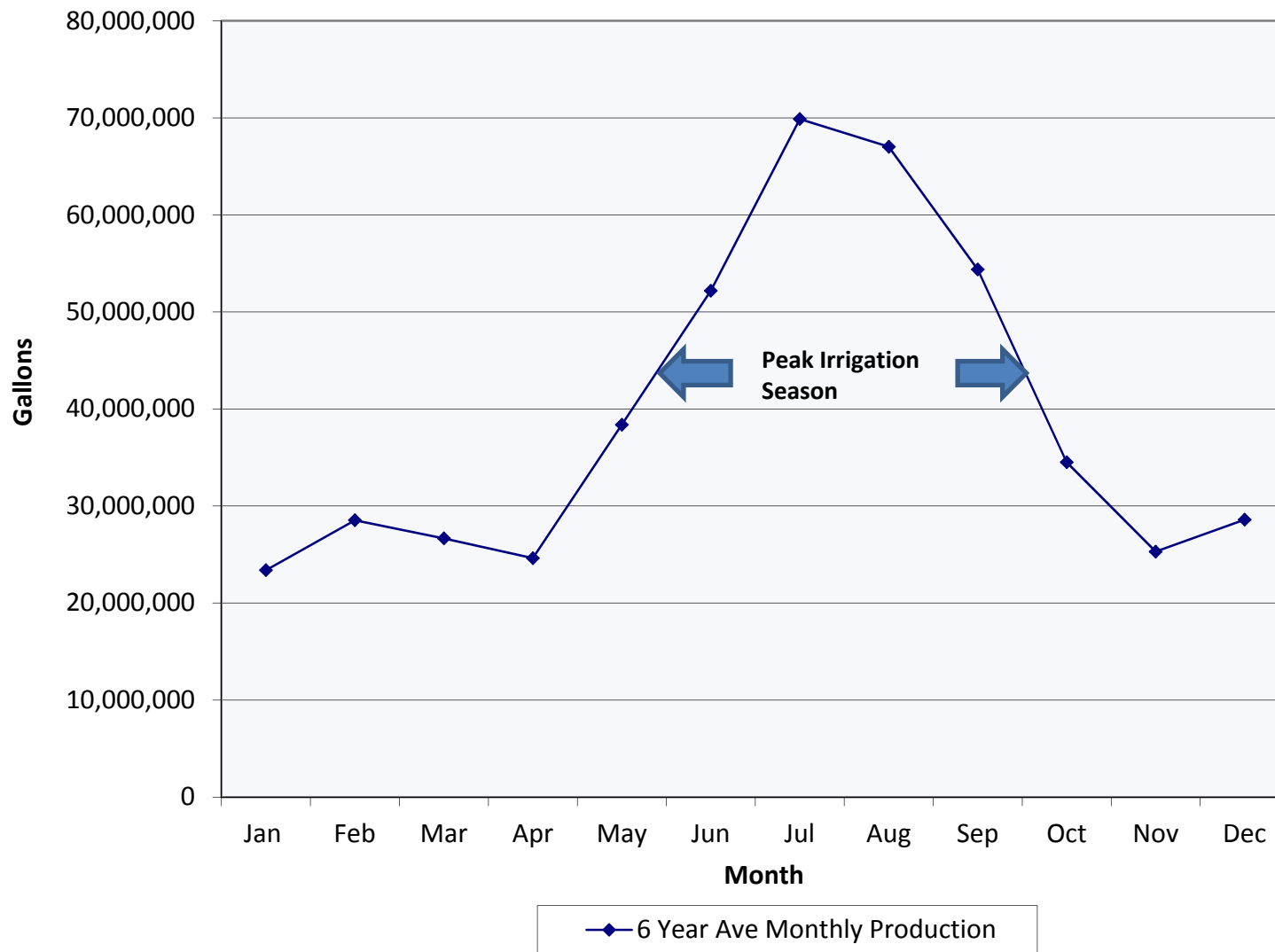


CITY OF AIRWAY HEIGHTS

Paleochannel & Well Map 2014

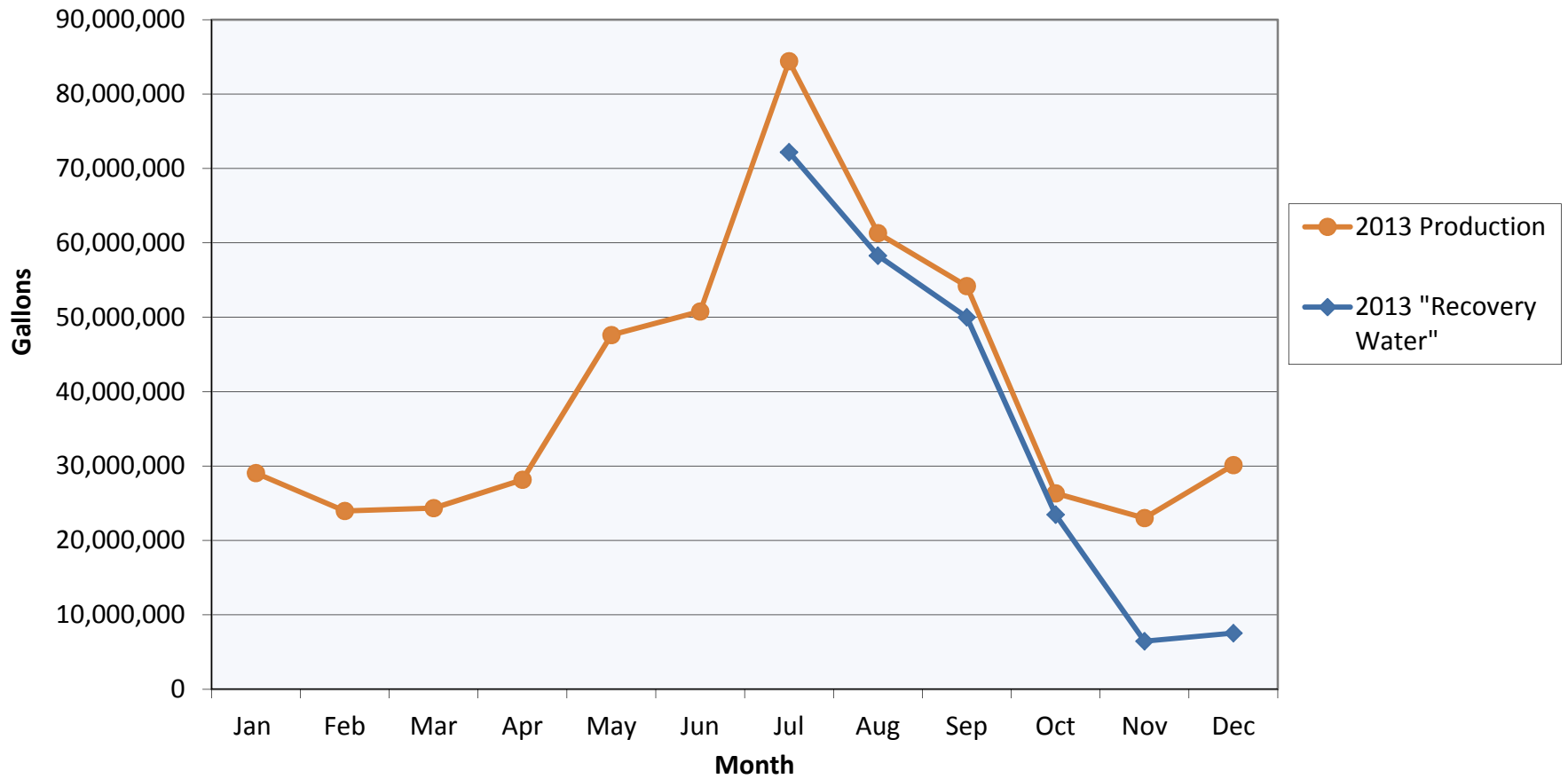


CITY OF AIRWAY HEIGHTS - Monthly Water Production 2008 thru 2013

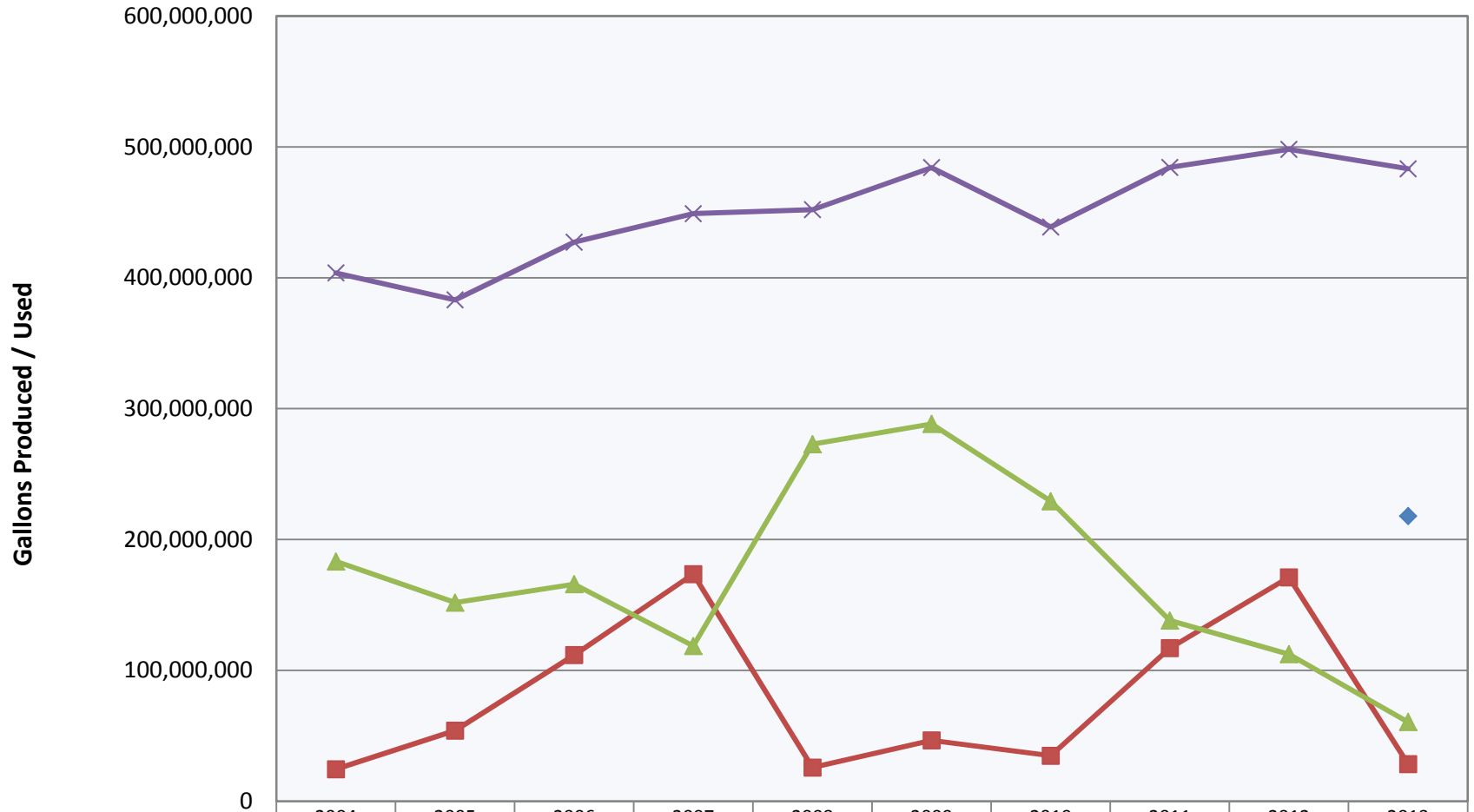


CITY OF AIRWAY HEIGHTS

Monthly Water Production / Reclaimed Water Recovery



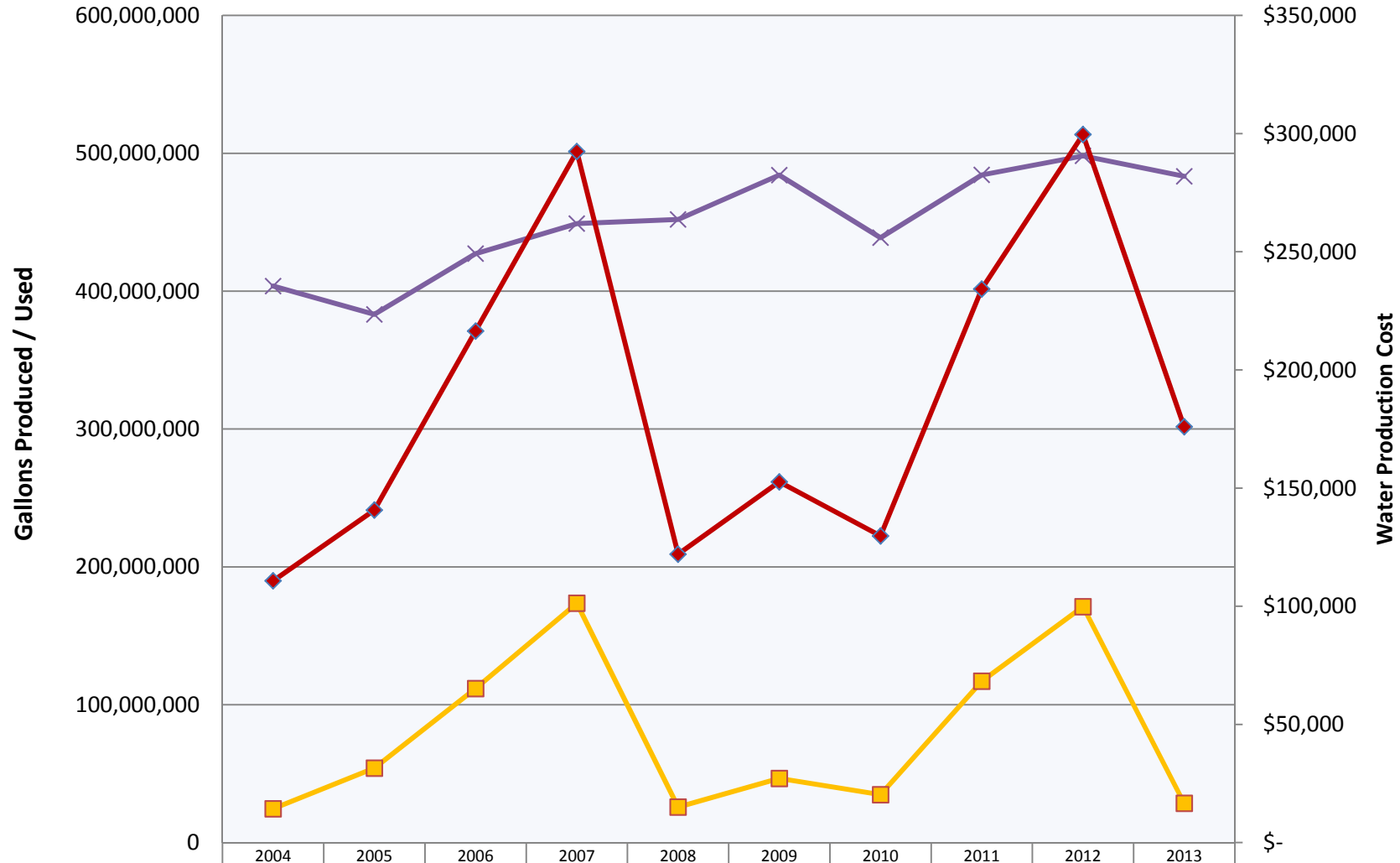
CITY OF AIRWAY HEIGHTS Historical Water Production/Inter-Tie Use



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
City of Spokane Inter-Tie Usage	24,541,880	54,057,960	111,751,200	173,595,840	25,768,600	46,555,520	34,791,880	117,045,680	171,124,640	28,468,880
Total Water Production/Inter-Tie	403,682,880	383,120,960	427,195,200	448,959,840	452,016,200	484,158,520	438,773,069	484,320,380	498,131,413	483,272,850
Recovery Well										217,932,000
ParkWest Well Production	183,239,000	151,823,000	165,868,000	118,685,000	272,837,000	288,309,000	229,186,189	138,107,500	112,349,400	60,551,900

YEAR

CITY OF AIRWAY HEIGHTS Production/Inter-Tie Use And Production Costs

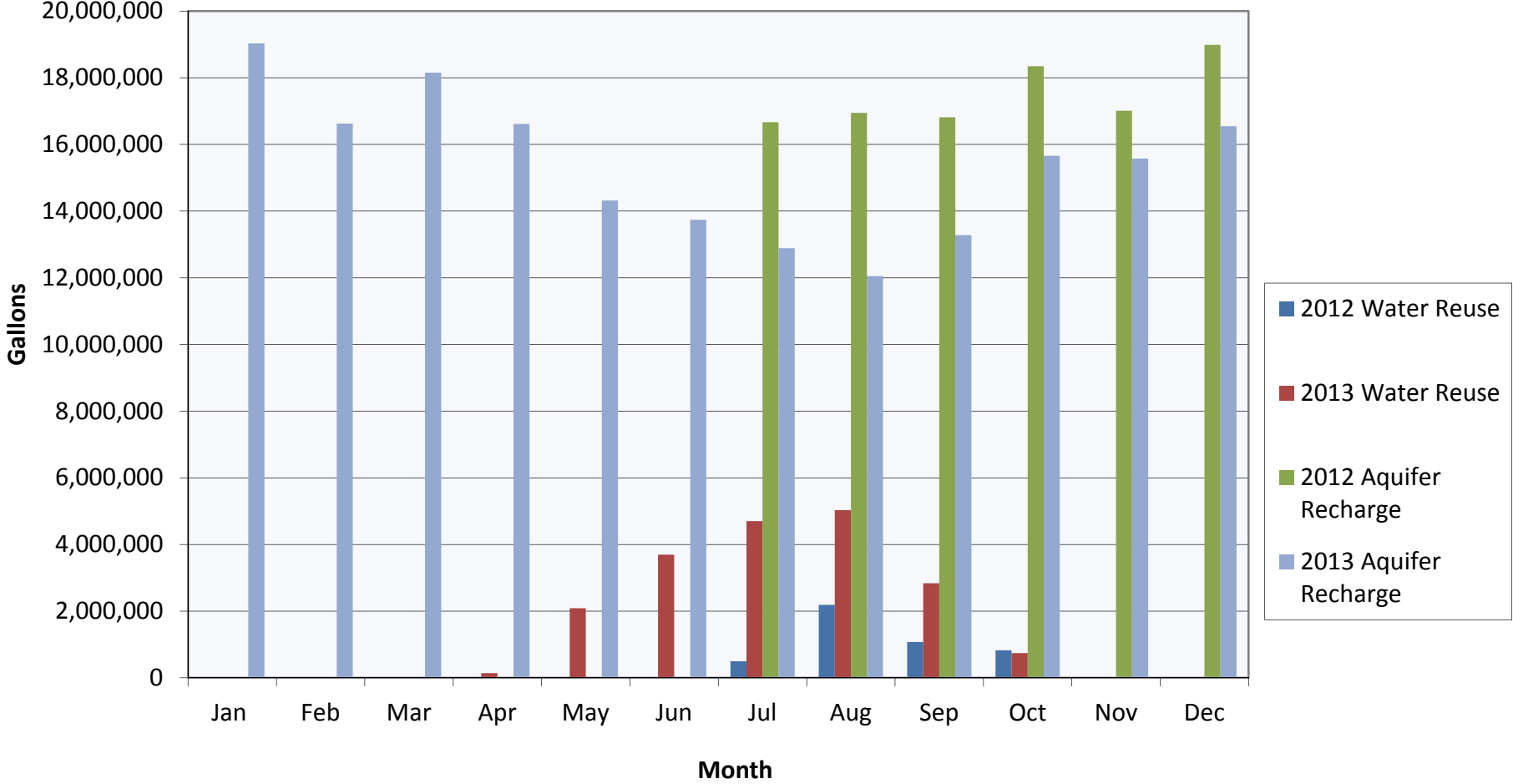


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Water Production Costs	\$110,746	\$140,702	\$216,444	\$292,438	\$122,026	\$152,633	\$129,764	\$234,223	\$299,610	\$175,984

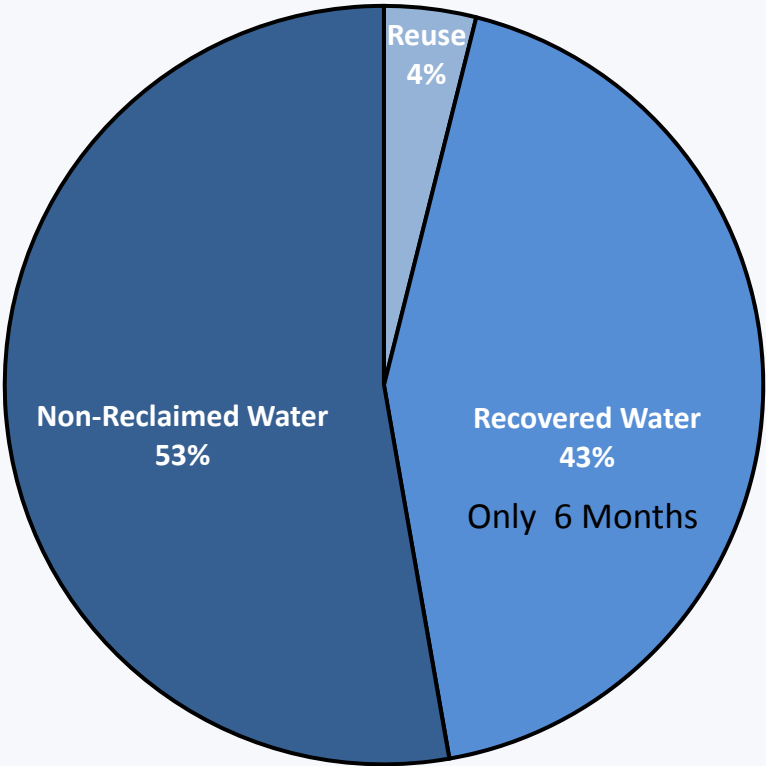
YEAR

CITY OF AIRWAY HEIGHTS

Monthly Aquifer Recharge and Water Reuse



CITY OF AIRWAY HEIGHTS 2013 Water Use





STEPS TOWARD WATER RESOURCE INDEPENDENCE

- **Water Intertie with City of Spokane:** 1989
- **Comprehensive Water System Plan:** May 2002
- **Comprehensive Sewer Plan:** April 2003
- **Study of Available Water Sources:** January 2004
- **Wastewater Facilities Plan:** February 2005
- **Water Reclamation Plant Design:** September 2007
- **Water System Plan Update:** May 2009
- **Ordinance Requiring Reuse in New Developments:** July 6, 2010
- **Plant Construction Complete:** May 2012
- **First Reuse System Connection:** October 2012
- **Reclaimed Water System Plan:** September 2013
- **Reclaimed Water Recovery Well Complete:** November 2013



WHAT'S NEXT?

- **Develop Hydro-Geologic Model and Aquifer Storage and Recovery Application to Support “Recovery Water”**
- **Promote Reuse to Existing Customers**
 - Washington Dept. of Corrections
 - Sunset Elementary School
 - Tribal Casino
- **Add New Customers**
 - Fairchild Air Force Base
 - Residential Uses
 - Tribal Casino
 - New Commercial Customers
- **Evaluate Other Reuse & Recovery Opportunities**
 - Second Recovery Well in Paleo-channel
 - Wetland Restorations

