

Water Reclamation Plant

Providing Water Resources to the West Plains

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Water Reclamation Plant Update

Over the past year, the City of Airway Heights Public Works Department has been continuing to finalize the design of the new Water Reclamation Plant, secure funding through grant and loan applications, and complete a value engineering analysis. This newsletter is the third in the series of Water Reclamation Plant newsletters to present you with an overview and update on the project.

In 2003, the City recognized that the West Plains was reaching its wastewater treatment capacity available through an agreement with the City of Spokane, and proactively began the planning process to secure wastewater capacity for the community. Based on this planning process, it was determined that the best solution was to keep water in the region, and address both wastewater capacity and limited water availability issues.

To achieve these goals, protect the environment and provide service to residents at the lowest possible cost, the decision was made to build a new Water Reclamation Plant. This Plant design will eliminate wastewater discharge to the Spokane River, helping to improve water quality. It will treat wastewater to Class A Water Reclamation and Reuse Standards that will provide water suitable for a wide variety of beneficial uses, providing a new source of water to meet the growing demands of the West Plains community.

Based on an evaluation of four candidate Water Reclamation Plant sites, the City selected the site located in the southerly portion of the City's service area, bounded by McFarland Road on the south, Russell Street on the east, 21st Avenue on the north and Lawson Street on the west.

In 2007, two project newsletters were mailed to all City of Airway Heights residents that provided information on upcoming meetings, reusing reclaimed water, various project elements including landscaping and design, available funding opportunities and project schedule. In addition, two public meetings were held to provide information and gather comments and perspectives from the community.

In 2008, the City of Airway Heights staff and consultant team 1) completed a value engineering study of the Water Reclamation Plant design to identify opportunities for efficiencies, while still ensuring that project goals are met, 2) finalized the Plant design and updated the cost estimates, and 3) submitted various grant and loan applications to help minimize future sewer rate increases.

The City currently is planning on soliciting construction bids in Spring of 2009, and breaking ground in Summer of 2009. Additional project status details are provided on the following pages.



► Investing in the Future

By investing in the new Water Reclamation Plant, the City of Airway Heights customers not only gain additional sewer treatment capacity, but also get a new source of water that improves groundwater quality and increases the groundwater supply. This new water resource – the Plant's reclaimed water – will reduce future costs associated with water system infrastructure and water outsourcing.

- **Reduce future water treatment costs.** The Plant's high quality reclaimed water and additional soil filtration will provide a source of recharged water that meets drinking water standards and will actually improve the groundwater quality by lowering Nitrate levels through dilution. It is expected that this improvement will alleviate the need for the City to add expensive Nitrate treatment to the water system.
- **Reduce costs associated with purchasing additional water.** The reclaimed water will be reused for irrigational purposes or be percolated on-site to supplement the currently stressed aquifer. This reuse and aquifer recharge is expected to reduce the demand on the groundwater supply and reduce the amount of water purchased from the City of Spokane by approximately .5 million gallons per day (MGD) between May and October.

Value Engineering Study Conducted to Identify Efficiencies

The City of Airway Heights is committed to ongoing value engineering. In 2008, a Value Engineering Study of the proposed Water Reclamation Plant design and building layout identified design modifications that could reduce the cost of constructing and operating the facility. As a result, the following design modifications were made in 2008:

- **Anoxic and Anaerobic Process Basins** were combined into one structure to reduce costs. This single structure creates a shared wall between the Anoxic Basins and Anaerobic Basins.
- **Utility corridor configuration** was changed and resized. The new corridor is much smaller, yet satisfies the same purpose. In addition, the contractors will now have the option of having this corridor built with pre-cast concrete that can be delivered and assembled on site. This option could result in significant cost savings over a cast in place concrete structure.
- The **equipment corridor** between the Anaerobic and Aeration Basins has been restructured and reduced in sized. This change satisfies the sizing requirements for the equipment to be installed, and reduces the amount of concrete needed.
- The **Aeration Basins** were changed from a mixer type technology to a bubbler type technology. This bubbler technology allowed the basin to be divided into two separate cells, which allows the emergency storage lagoon size to be reduced. This change also enables the basins to be rectangular shaped instead of the previously proposed curved shape, which reduces the cost for the concrete forms. In addition, this change also eliminated several overhanging concrete platforms.
- At the **Influent Pump Station**, a portable Gantry crane will now be used instead of the more expensive Jib crane.
- **Electrical services** were reduced from three to two to save costs. The power demands remain the same, but the reduction in services allows the consolidation of power requirements to two areas instead of three. In addition, aluminum wiring instead of traditional copper wiring have been incorporated into the design to reduce the impacts of increased copper prices.

Phase 1 Construction Schedule

The first phase of the Plant will treat up to 1 million gallons per day (MGD) of wastewater. The Phase 1 construction is split up to align with the various grants and loans that are being secured. A second phase is planned in the future to increase sewer treatment capacity to 1.5 MGD, when additional capacity is needed.

Phase 1A Bidding	Early 2009
Phase 1A Construction	Spring 2009 – Spring 2010
Phase 1B Bidding	Fall 2009
Phase 1B Construction	Early 2010 – Early 2011
Wastewater Discharge Permit Issued	Spring 2011
Plant Startup	Spring 2011

Water Reclamation Plant Cost Estimate

Cost Considerations

The Value Engineering Study has allowed the City of Airway Heights to save significant costs associated with construction of the Water Reclamation Plant. However, over the past year several factors have influenced the estimated cost of the Plant, including significant increases in direct material prices.

Over the last year, the price of steel used in construction has increased by more than 20% (ENR Materials Cost Index, ENR Magazine 9/22/08) and the price of electrical wiring, especially copper, has increased by 20-25%. These cost increases are seen throughout the country and world and are not specifically tied to our region. The demand for construction materials is growing and the steel used in structural concrete, steel buildings, and steel pipe is in high demand.

As described above, several options have been identified to reduce the impacts of these construction material cost increases. Numerous design modifications have been made to reduce the amount of structural concrete required and need for copper wiring.

Estimated Facility Construction Costs

The current Phase 1 estimated facility construction cost is over \$43.5 Million. Construction of Phase 1A of the Plant is expected to be approximately \$11 Million. Construction of Phase 1B of the Plant is currently estimated to be over \$32.5 Million, which could change with rising construction material costs.

Facility Construction Funding

The City of Airway Heights is committed to securing as much funding as possible to keep customer sewer rates low. In addition, the City is committed to providing a new water resource for the West Plains that improves groundwater quality and reduces future water system costs. The following funding has been secured and/or is being pursued.

	Cost Estimate	Secured Funding	Potential Funding Sources
Phase 1A	Approx. \$11 Million	<ul style="list-style-type: none"> \$2.9 Million – Ecology Centennial Clean Water Fund \$7.0 Million – Washington State Public Works Trust Fund Loan \$1.0 Million – City of Airway Heights Capital Program matching funds 	All Funding Secured
Phase 1B	Over \$32.5 Million	<ul style="list-style-type: none"> \$2.0 Million – Ecology Centennial Clean Water Fund 	<ul style="list-style-type: none"> \$30.5 Million – Ecology State Revolving Fund Loan \$6 Million – United States Department of Agriculture \$10 Million – Public Works Trust Fund Loan

► Opportunities for Reusing Reclaimed Water Identified

The Department of Corrections (DOC) and Spokane County Raceway Park both plan to use reclaimed water from the City's new Water Reclamation Plant for irrigational purposes. A benefit of the new Plant is that it will produce .5 million gallons per day of Class A reclaimed water.

This new source of reclaimed water for irrigation will reduce the potable water demand thereby freeing up enough water to support 1000 new homes. The DOC was identified during the facility planning process as a potential significant user of reclaimed water. The location of the reclaimed water main infrastructure also coincides with the Spokane Raceway Park, another large irrigational user.

► Sewer Rate Implications

Since grant and loan funds are highly sought after and competitive, it is anticipated that Airway Heights will only be able to secure a portion of the funds needed to construct Phase 1B of the Plant. To cover additional, unfunded costs, local sewer rates will need to be increased. The increased rate will depend on how much funding is secured for Plant construction. A recent rate study indicates that:

- If funding is secured that covers all the Phase 1B construction, sewer rates would increase by approximately 20% to \$72 per month by 2011.
- If no additional funding is secured for Phase 1B construction, sewer rates would increase by approximately 30% to \$80 per month by 2011.



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How to Stay Involved

Airway Heights Website

City of Airway Heights has set up a Water Reclamation Plant web page to provide information about the project background, design and construction. The website address is www.cawh.org/water_reclamation_plant.asp. In addition to background information on the Plant, you will find meeting information, project newsletters and the current schedule. Be sure to check the website regularly.

Project Mailing List

Future mailings may only go to those on the project mailing list. If you have not attended one of the public meetings or do not think you are on the list, please call the City of Airway Heights at 509-244-5578 or email bstclair@cawh.org and ask to be added to the project mailing list.

Contact Information

If you have questions or would like more information about the Water Reclamation Plant project, please contact City of Airway Heights City Manager, Albert Tripp at 509-244-5578 or atripp@cawh.org, or Bryan St Clair, Public Works Director, at 509-244-5429 or bstclair@cawh.org.