

## EXECUTIVE SUMMARY

The Wastewater Facilities Plan for the City of Airway Heights Wastewater Treatment Facility has been prepared to develop, evaluate, and make recommendations regarding treatment of existing and future projected wastewater flows. Projected flows are expected to exceed within a relatively short time the amount reserved in the Regional Wastewater Treatment Plant owned and operated by the City of Spokane.

Through an Interlocal Agreement with the City of Spokane, the City of Airway Heights has reserved a capacity of 680,000 gallons per day (annual average flow (AAF)) in the Riverside Park Water Reclamation Facility (RPWRF), which is owned and operated by the City of Spokane. Based upon growth and associated wastewater projections from the City of Airway Heights service area, flows in excess of 680,000 gallons per day (max. month) are expected sometime in the year 2006. This volume of flow exceeds the capacity currently reserved in the RPWRF.

This Wastewater Facilities Plan evaluates several options for providing wastewater treatment capacity for the City of Airway Heights, to accommodate projected wastewater flows from the City of Airway Heights service area through a 20-year planning horizon. The treatment alternatives include:

- Alternative No. 1: Acquire additional capacity in the City of Spokane's RPWRF.
- Alternative No. 2: Implement an Interlocal Agreement with the City of Medical Lake for conveyance and treatment of flows generated by the City of Airway Heights. Reclaimed water would be conveyed back to Airway Heights for re-use in commercial or industrial applications, and disposal of excess flows to groundwater.
- Alternative No. 3: Design and construct a new wastewater treatment, reclamation, and recharge facility, owned and operated by the City of Airway Heights, to treat the reclaimed water to a level suitable for beneficial reuse in commercial and industrial applications, and groundwater recharge with excess water, for later withdrawal for beneficial uses.

The City formed a Wastewater Advisory Committee (the "Committee") to advise City staff and consultants on the evaluation and selection of numerous elements in the Wastewater Facilities Plan. The Committee evaluated and scored each treatment alternative on these criteria:

- **Environmental Criteria**
  - Minimizes Negative Impacts on Surface Water Quality
  - Minimizes Negative Impacts on Ground Water/Drinking Water Quality
  - Minimizes Negative Impacts to Areas of Natural, Aesthetic, or Recreational Significance
- **Growth Management Criteria**
  - Provides for Future Sewer Service Demand
  - Provides for Future Water Service Demand
  - Conserves City's Existing Potable Water Supply

- **Feasibility Criteria**
  - Does Not Require New Regulatory Approvals/Permits
  - Does Not Require Creation of New Interagency Agreements
  - Does Not Require Renegotiations of Existing Interagency Agreements
  - Does Not Require Capital Financing
  - Is Easy to Implement
  - Is Simple to Maintain
  
- **Economic Criteria**
  - Minimizes Sewer System Capital Costs
  - Minimizes Sewer System Operation and Maintenance Costs
  - Encourages Economic Development
  - Supports Stabilizing Sewer Rates
  
- **Social Criteria**
  - Provides Potential for Additional Recreational Facilities
  - Provides Potential for Public Education
  - Minimizes Negative Impacts to Areas of Historical, Cultural, and Social Significance
  - Minimizes Public Concerns Related to Drinking Water Quality
  - Minimizes Public Concerns Related to Increasing Sewer Rates
  - Minimizes Public Concerns Related to Increasing Water Rates

Based on a weighted scoring of the alternatives, the City selected the design and construction of a new treatment, reclamation, and recharge facility to provide wastewater treatment capacity for the City of Airway Heights and its sewer users (Alternative No. 3). The facility would be designed for a daily (annual average) design flow of approximately 1.5 MGD at the 20-year design life (year 2030).

This Facilities Plan also evaluates four candidate sites for the location of the plant:

- Site Alternative No. 1: In the northerly portion of the service area, along Deno Road between Russell Street and Hayford Road;
- Site Alternative No. 2: On a portion of the parcel owned by the City for the ParkWest Well, north of SR902 and east of Craig Road;
- Site Alternative No. 3: On the southwest corner of Craig Road and McFarlane Road; and
- Site Alternative No. 4: In the southerly portion of the City's service area, bounded by McFarlane Road on the south, Russell Street on the east, 21<sup>st</sup> Avenue on the north, and Lawson Street on the west.

Each of these sites would require some degree of expansion of the City's sewer conveyance system, to include lift station and force mains. Each site would also require the construction of a reclaimed water distribution system to supply commercial and industrial customers. The Committee evaluated and scored each candidate site on these criteria:

- Land Ownership and Availability
- Land Availability for Future Expansion and Buffering Requirements
- Potential Impacts on Receiving Water Quality
- Technical & Economic Impacts of Receiving Water Requirements
- Feasibility of Connecting to City's Existing Collection System
- Proximity to Potential Reclaimed Water Uses
- Accessibility to Existing Roads and Utility Services
- Ability to Obtain Required Approvals for Siting Facility
- Location Within Desired Floodplain Designation
- Compatible Site and Surrounding Land Use Designations
- Proximity from Areas of Natural and Aesthetic Significance
- Proximity from Areas of Historical and Cultural Significance
- Minimal Previous Site Uses, Extent of Possible Soil and Groundwater Contamination
- Feasibility of Mitigation Measures
- Potential to Encourage Partnerships for Project Financing
- Public Acceptability
- Potential For Multiple Site Uses
- Total Cost

Based on a weighted scoring of the candidate sites, the City selected the site located in the southerly portion of the City's service area, bounded by McFarlane Road on the south, Russell Street on the east, 21<sup>st</sup> Avenue on the north, and Lawson Street on the west (Site Alternative No. 4).

Proposed liquid treatment components at the plant include: fine screening, grit removal, extended aeration activated sludge treatment, biological phosphorus and nitrogen removal, secondary clarification, tertiary treatment with coagulation and filtration, and disinfection.

Additional treatment for discharge to a reclaimed water system will involve advanced biological treatment, coagulation and filtration, and additional disinfection to meet Class A Water Reclamation and Reuse Standards. Residual chlorine will be maintained in the effluent for reuse. Treatment of wastewater for discharge to groundwater will involve advanced biological treatment, coagulation and filtration, and additional disinfection to Class A Water Reclamation and Reuse Standards, plus removal of nitrogen to protect groundwater quality.

Biosolids will need to meet requirements in three areas: pathogen reduction, vector attraction reduction, and pollutant limits. Alternatives evaluated for biosolids treatment and disposal include:

1. Off-site treatment and disposal of biosolids;
2. Production of Class B biosolids with agricultural land application; and
3. Production of Class A biosolids with composting.

Alternative No. 1, Dewatering and hauling off-site for treatment and disposal, is estimated to be the least cost alternative based on capital cost as well as total cost per dry ton, and is the proposed biosolids management alternative for a new City of Airway Heights wastewater treatment facility. Treatment and disposal would be by either a private contractor or to the City of Cheney's wastewater treatment and reclamation facility.

In order to equalize the impact to user rates, it is proposed that the facility be constructed in two (2) phases: Phase 1 would provide a capacity of approximately 1.0 MGD (AAF), and Phase 2 would bring the total plant capacity up to about 1.5 MGD (AAF).

Schedule for improvements would be partially dependent on procurement of funding. Design would be initiated in early 2005 with completion by mid-2006. Construction could begin as soon as late 2006 if adequate funding becomes available, with completion in late 2007 to early 2008. A more realistic (delayed) funding scenario could result in Phase 1 construction beginning in 2008 and completion by 2010. Phase 2 design would commence in 2011, with Phase 2 construction starting in 2012 and being completed by 2013.

It is anticipated that in order to accommodate the projected growth in wastewater flows, the City of Airway Heights would need to obtain some degree of additional treatment capacity from the City of Spokane until the start of operations for the Airway Heights facility.

The treatment facility would be designed to accommodate expansion. The prospect of serving additional areas in the current "West Plains" service area of the City of Spokane under an Interlocal agreement may be feasible, but is beyond the scope of this Facilities Plan.

### Recommended System

The recommended wastewater system improvements include the following:

Component	Estimated Cost	
	Capital <sup>a</sup>	O&M <sup>b</sup>
Existing Collection System	- <sup>c</sup>	\$ 231,000
Collection System Improvements – To Treatment Site	\$ 2,300,000	\$ 32,000
Wastewater Treatment Plant – 1.0 MGD, Reuse Class A, Phase 1 <sup>d</sup>	\$ 23,300,000	\$ 600,000
Reclaimed Water Distribution System – To Use Areas	\$ 2,800,000	\$16,000
Reclaimed Water Revenue – Replace Existing Supply <sup>e</sup>	-	(\$ 193,000)
<b>Total Projected Costs</b>	<b>\$ 28,400,000</b>	<b>\$ 686,000</b>

- a Estimated capital cost based on 2004 prices.
- b Estimated annual O&M cost at approximately year 2010.
- c 6-Year capital Plan from Sewer Master Plan.
- d Phase 2, 1.5 MGD, postponed to startup approximately 2014.
- e Assuming no recovery of stored groundwater.

It is recommended that the capital cost for the system be financed by a combination of grants, as available, and low interest loans. Sewer charges must be adjusted to pay O&M costs, repay capital cost loans, pay for 6-Year capital improvements budget, and provide coverage for loans.

## **Topics**

- **Chapter 1** presents general information about the contents of the Plan.
- **Chapter 2** presents information about the current wastewater system in the City.
- **Chapter 3** presents a projection of the future population and anticipated wastewater flows.
- **Chapter 4** presents the three Treatment Alternatives and the four Site Alternatives that were evaluated for this Plan.
- **Chapter 5** presents a more detailed concept plan of the selected Treatment and Site Alternative, to include a conceptual site layout.
- **Chapter 6** discusses various programs for project financing and presents a recommended financing strategy.
- **Chapter 7** discusses various Environmental Review requirements and the public participation to date, and presents a possible implementation timeline.