

## **Statement of Work**

**WATER ACTIVITY NAME – Town of Norwood, Raw Water System Update and Future Needs Study**

**GRANT RECIPIENT – Town of Norwood**

**FUNDING SOURCE - Basin Account**

### **INTRODUCTION AND BACKGROUND**

The Town of Norwood and the Norwood Water Commission own numerous water rights in the San Miguel River Basin. Currently, the primary source of water is storage water in Gurley Reservoir and surface and ground water supplies in the Gurley Canyon drainage basin. The Raw Water Supply System Report Updated (December 2000 Report) calculated a dry year yield of 199 AF, including 119 AF from 119 shares of Gurley Reservoir Water. It is important to note the yield from Gurley Reservoir was based on 1 AF per share, which is greater than the 0.7 AF per share yield measured in 1977. An estimated yield per share for the 2002 and 2003 drought was not provided because the report was authored in 2000. In addition, the December 2000 report states the Gurley Reservoir System water is available for water system during the summer months, and direct flow water rights and local storage is used for winter months. Since the time of the report, the 119 shares of Gurley Reservoir are no longer used as a source for the water system and a new contract with Farmers Water and Development Company (FWDC) has been executed. The Town is currently leasing the 119 shares to other users.

Since the last update to the Raw Water System Report four important changes have occurred to the raw water supplies have occurred that require an update to the Raw Water Master Plan: 1) the 2002-2003 drought, 2) the contractual change with FWDC for the primary water supply for the water system, and 3) updates in population and full-build out growth estimates, 4) adoption of watershed ordinance.

### **OBJECTIVES**

The objectives of the study are:

Update the 2000 Raw Water Master Plan to include:

- 1) Assess average and dry year water supply yield including the 2002 and 2003 drought.
- 2) Incorporate the provisions of the latest contract with the FWDC for Gurley Reservoir storage water.
- 3) Update the raw water master plan to include population and full build-out growth estimates.
- 4) Provide recommendations on protection and enhancement of the Town's portfolio of water rights and provides strategies on water measurement, conservation and management.
- 5) Provide baseline hydrologic data for implementation of watershed ordinance

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### **TASKS**

#### **TASK 1 – Gurley Reservoir Firm Yield**

##### Description of Task

Provide review of general hydrology of Gurley Reservoir System and estimate firm yield during average and dry years. Provide baseline hydrology for Town's watershed ordinance.

##### Method/Procedure

Review the provision of the current water contract with FWDC. Review available data for precipitation, inflow, and demands including agricultural and municipal for average and dry years. Provide preliminary water balance inflows, outflows, carryover storage and estimates of evaporation, seepage and transit losses. Review historical call records and administration. Provide assessment of legal and physical water supply yield on a monthly basis. Provide baseline hydrology for Town's watershed ordinance.

##### Deliverable

Estimate of the firm yield of the reservoir system for average and dry years including 2002 and 2003 and anticipated delivery losses. Provide an average and dry-year water supply schedule on a monthly basis. Provide recommendations including water measurement and management.

#### **TASK 2 – Direct Flow Water Rights Firm Yield**

##### Description of Task

Provide average and dry year yield of Town's direct flow water rights

##### Method/Procedure

Map decreed and actual locations of water rights. Review available data for precipitation, diversions and transit losses. Review historical call records and administration. Provide assessment of legal and physical water supply yield.

##### Deliverable

Estimate of the firm yield of the direct flow water rights for average and dry years including 2002 and 2003 and anticipated delivery losses. Average and dry year firm yield water supply schedule will be provided on a monthly basis. Provide recommendations including water measurement and management.

#### **TASK 3 – Assess Water System Demands**

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### Description of Task

Assess Water Systems Demands for Town and rural customers for current and full build-out conditions

### Method/Procedure

The development of the water system demands is largely based on findings of November 2006 Water System Master Plan Update and allowable development under County land use regulations. Growth estimates and demands will be updated based on current information. Water system demands will be broken out into a current and full build-out monthly demand schedule.

### Deliverable

Monthly current and full build-out water demand schedule for the Town and rural water users.

## **TASK 4 – Assess Firm Yield of Water Supply and Water Demands**

### Description of Task

Compare average and dry year water supply and water demand estimates for current and full build-out conditions.

### Method/Procedure

Compare monthly water supply and demand using average and dry year firm yield water supplies from Task 1 and Task 2 and monthly current and full build-out water demands from Task 3. Assess water conservation, use of non potable irrigation system and development of additional storage if needed.

### Deliverable

Provide results of monthly comparison of water demands and supplies. Provide recommendations to reduce water demands including conservation, using nonpotable irrigation systems, and increasing delivery efficiencies, etc. Provide recommendations to increase supplies if needed including water storage.

## **TASK 5 – Report Preparation**

### Description of Task

Prepare report based on findings of Task 1 through Task 4

### Deliverable

Provide report including text, maps, photographs, figures and tables based on findings from Task 1 through 4. Provide summary and recommendations.

## **REPORTING AND FINAL DELIVERABLE**

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The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the statement of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the deliverables associated with each tasks as outlined above.

### **BUDGET**

A budget for each task is provided in Table 2.

### **SCHEDULE**

A proposed schedule is provided in Figure 1. The schedule is subject to change based partly on execution of a contract with CWCB.

### **PAYMENT**

Payment will be made based on actual expenditures and invoicing by the applicant. Invoices from any other entity (i.e. subcontractors) cannot be processed by the State. The request for payment must include a description of the work accomplished by major task, and estimate of the percent completion for individual tasks and the entire water activity in relation to the percentage of budget spent, identification of any major issues and proposed or implemented corrective actions. The last 5 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed. All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and help promote the development of a common technical platform.

**Table 2**  
**Norwood Water Study**  
 Budget  
 August 31, 2009

Task	Task Description	WSRA Funding Request						Town of Norwood Cost Share				Total Project Cost
		Project Engineer/ Manager	Civil Engineer / Hydrologist	Geologist	Drafting	Word Processing	WSRA Funding Request	Norwood Water Rights Attorney	City Administrator	Public Works Director	Cost share - In Kind and Attorneys Fees	
		\$171	\$122	\$98	\$88	\$71.5		\$150	\$30	\$37		
Task 1	Provide baseline hydrology for Town's watershed ordinance	10	80	40	40		\$ 18,910	8		16	\$1,792	\$20,702
Task 2	Provide average and dry year yield of Town's direct flow water rights.	6	40		10		\$ 6,786	8		16	\$1,792	\$8,578
Task 3	Assess water systems demands for Town and rural customers for current and full build-out conditions	4	5	11	20		\$ 4,132	8		16	\$1,792	\$5,924
Task 4	Compare average and dry year water supply and water demand estimates for current and full build-out conditions.	8	40	30	10		\$ 10,068	3			\$450	\$10,518
Task 5	Report preparation and grant administration	8	40	8	20	30	\$ 10,937	3	24		\$1,170	\$12,107
	<b>Total Hours:</b>	36	205	89	100	30		30	24	48		
	<b>Total Labor Cost:</b>	\$6,156	\$25,010	\$8,722	\$8,800	\$2,145	\$ 50,833	\$ 4,500	\$ 720	\$ 1,776	\$6,996	\$57,829
	<b>Expenses (15%)</b>						\$7,625					\$7,625
	<b>Total Cost</b>						<b>\$ 58,458</b>				<b>\$6,996</b>	<b>\$65,454</b>

Match as a percentage of WSRA Project Request

12%

**Figure 1**  
Norwood Raw Water Master Plan Update  
Project Schedule  
Ammended 02-05-2010

Task	Task Description	2010			2011
		Apr-Jun	July-Sep	Oct - Dec	Jan - Mar
Task 1	Provide baseline hydrology for Town's watershed ordinance	X	X	X	
Task 2	Provide average and dry year yield of Town's direct flow water rights	X	X		
Task 3	Assess Water Systems Demands for Town and rural customers for current and full build-out conditions	X	X		
Task 4	Compare average and dry year water supply and water demand estimates for current and full build-out conditions.		X	X	
Task 5	Report Preparation and Grant Administration			X	X