



*Photo Credit: Google 2015*

***Proposal for SRP 1 Flowtography™ Station Installation and  
Equipment O&M Services at Upper Lake Mary Dam***

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Salt River Project***

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## I. Introduction

SRP is providing the following proposal for the installation of 1 SRP Flowtography™ station (for collection of images only, no stream flow monitoring) and for the Operation and Maintenance (O&M) of 1 SRP Flowtography™ station, located at the Upper Lake Mary Dam.

## II. Water Monitoring Method and Data Collection

### A. Data Management

High resolution site images must be manually extracted from the device. Images collected may have missing periods caused by unforeseen circumstances such as break fix events and vandalism. Collection of the images would be facilitated at a level of frequency to be determined as part of this project. For example, depending on runoff events and site visit costs, it could be done quarterly, monthly, or weekly (not to exceed 4 visits in 9 months). The images will not be converted to stage height in back office operations. The images will be uploaded into SRP's Cumulus system.

### B. Data Access/Sharing

Images from the project's inception to completion will be retained and can be requested for retrieval from SRP. SRP may request to use the data for current/future business purposes.

### C. Drone Command Hub

Flowtography thumbnail images will be available by User ID/Password at a third party's website ([www.dronewireless.com](http://www.dronewireless.com)).

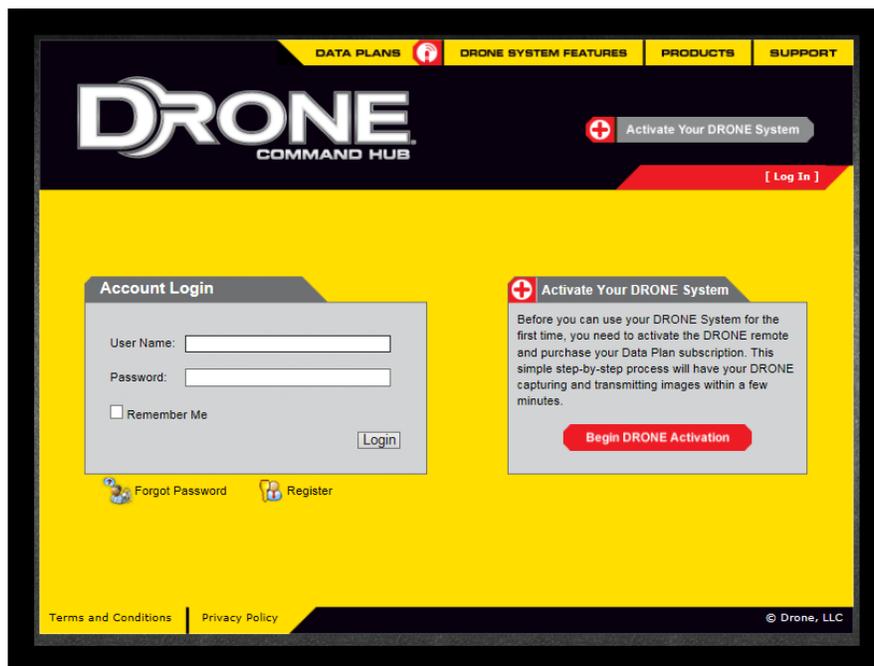


Figure 1 Drone Command Hub Login

### III. SRP Flowtography™ Stations

SRP Flowtography™ Station will collect images only (that is, no devices to collect stage data) and the transmittal of those images via cellular network are needed to gather information that is important to the lake level being currently monitored.

Each site (in the table below) would be equipped with a camera and cellular modem, mounting, enclosures and hardware, and would be solar powered.

The cost for the SRP Flowtography™ station (all equipment) is shown in **Table 1**.

**Table 1 – Equipment Costs**

<i>Equipment Cost</i>			
Site Name	Qty	Estimated Capital Cost	Total
SRP FLOWTOGRAPHY™ site	1	\$ 3,512 (plus any taxes if applicable)	\$3,512
<b>Total Costs (applicable taxes not included)</b>			<b>\$3,512</b>

- Specific permitting of the site, e.g. Landowner access agreements, County / Forest Service permits would be the responsibility of the City of Flagstaff to obtain.

### IV. Site Survey, Back Office Initialization & Setup, & Installation Costs

Below is a summary of the initialization and installation cost to install the SRP Flowtography™ Station. Cost includes initial site selection and survey, transport of staff and materials (all station requirements) to site, installation and initialization of site, and staff accommodations and travel expenses as required.

**Table 2 – Installation Costs**

<i>Installation Costs</i>			
Site Name	Qty	Estimated Capital Cost	Total
SRP FLOWTOGRAPHY™ site – no event monitoring (images only)	1	\$ 4,234 (plus any taxes if applicable)	\$4,234
<b>Total Costs (applicable taxes not included)</b>			<b>\$4,234</b>

### V. Operation and Maintenance (O&M) - Recurring Costs Estimates

The O&M budget will be used to travel, operate, maintain the site and collect Flowtography images and retain the images.

To meet the above deliverables, SRP estimates the annual site costs in **Table 3**. *Taxes, if applicable, will be additional.* The actual timing of services provided could vary due to inclement weather, travel methods, site complexity, site access issues, forest closures, and break fix events.



**Table 3 – Comprehensive O&M Costs (Includes data processing and web services)**

<i>Annual Maintenance Budget-Planned (not to exceed 4 site visits/9 Months)</i>			
	<b>Qty</b>	<b>Estimated O&amp;M Cost</b>	<b>Total</b>
SRP FLOWTOGRAPHY™ site – no event monitoring (images)	1	\$ 3,563 / 9 Months / site / Not to exceed 4 visits	\$3,563
Flowtography Images – Cataloged in SRP’s Cumulus system for storage and recovery as needed	1	Included	Included
Cellular Fees SRP FLOWTOGRAPHY™ sites	1	\$240 / month / 1 sites (estimated recurring monthly cost)	\$2,160
Retention of Flowtography Images – 1 Site	1	Included	Included
<b>Total Estimated 9 Month O&amp;M Costs</b>			<b>\$5,723</b>
<b>O&amp;M Costs per site (applicable taxes not included)</b>			<b>\$5,723</b>

Renewed funding by Client will be subject to the approval of a recommended funding term as approved by the City of Flagstaff City Council and subsequent amendment to ICA.

*\*In the event of any unforeseen circumstances, equipment needs or break-fix events, the following SRP costs could apply:*

<i>Transportation – Helicopter</i>	<i>\$ 650 per rotor hour (avg. depends on aircraft)</i>
<i>Transportation – Vehicle - ground</i>	<i>\$ 10 per SRP labor hour</i>
<i>Additional Materials</i>	<i>Actual cost plus 15%</i>
<i>Network Fees (other equipment as required)</i>	<i>\$ 85 per site per month</i>
<i>Labor (Professional Services)</i>	<i>\$ 125 per hour</i>
<i>Labor (non-technical if appropriate)</i>	<i>\$ 105 per hour</i>
<i>Data Processing (Professional &amp; Analytical Services)</i>	<i>\$ 145 per hour</i>
<i>Direct Hydrographic Measurement (exclusive of travel costs)</i>	<i>\$ 510 per site / event</i>
<i>Overnight stay and meal expenses (when required)</i>	<i>~ \$ 250 per day/person</i>

\*SRP and City of Flagstaff to establish criteria for City authorization for SRP to conduct ad-hoc services or emergency services due to equipment outages prior to the installation of the equipment.

## **VI. Invoicing**

All invoices will be accompanied by a detailed description of equipment and/or services provided by site, date, and purpose as follows.

### **A. Operation and Maintenance (O&M) - Recurring Charges**

At such time that the initial installation is complete, the site will enter into the operational and maintenance phase of the project. Invoicing for routine services will occur at regular intervals and will be



submitted subsequent to scheduled or unscheduled (break fix) service events (subject to City authorization).

**B. Break-Fix Event (Exception to Planned Schedule)**

In the event any special services or equipment requirements are needed, these actions will be invoiced as they occur. A process for seeking City of Flagstaff approval for exceptions to equipment or service events will need to be defined.

**C. Special Call Out and Change Orders**

Special call-out for pre/post-storm or other servicing (such as collecting direct hydrographic measurements or collect data and photographs) will be charged as a Break-Fix event.

**D. Future Pricing**

Future pricing is subject to escalation by the published CPI. Costs will be reviewed/renewed annually in the month of April each year.



## VII. Notice to Proceed

This document outlines SRP's proposal for the deployment and Operation/Maintenance of 1 SRP Flowtography™ station. SRP will install, operate, and maintain the site and retain the Flowtography images in support of the City of Flagstaff Lake Mary Watershed Monitoring Project.

An Independent Contractor Agreement (ICA), when appropriately signed, will serve as City of Flagstaff's notice to proceed for SRP. The ICA has been included as a companion document to this proposal. The ICA, Schedule A, refers to this project proposal. Schedule B summarizes all Compensation and Payment costs.

If the City should have any questions or would like to discuss this project proposal in further detail, please contact:

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