Communications Upgrade for CoAgMet (Colorado Agricultural Meteorological Network) to Ensure Data Accessibility Scope of Work

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Introduction:

The Colorado Climate Center at Colorado State University operates a statewide network of automated agricultural weather stations called CoAgMet (The Colorado Agricultural Meteorological Network). CoAgMet stations measure temperature, humidity, solar radiation, wind speed and direction, precipitation and soil temperature on both the hourly and daily time step. This is a valuable dataset across the state for dealing with consumptive use calculations as they pertain to water rights transfers, water management for irrigation scheduling and drought monitoring to ensure efficient use of our states' most valuable natural resource. The network also serves many other data needs including disease and pest management and environmental monitoring and renewable energy. CoAgMet provides these essential data free of charge via the internet (www.coagmet.colostate.edu).

The majority of the network transmits these data via cellular modems. As with all cellular communications, changes are constantly being made not only to the technology but also the backbone of the cellular network. In the near future, the method of data transfer that is currently utilized (circuit switched) by CoAgMet communications hardware will be replaced by a new method (packet switched) which is incompatible with current hardware. This funding will ensure a smooth transition when this overhaul occurs. The newer technology transitions the service from voice to data and will allow for more timely updates of data at a lower cost than voice service allowed. Without support for this upgrade, the data stream from CoAgMet will not be able to be accessed once this transition is made. This funding is essential to ensure this valuable data source remains accessible.

Deliverables:

Deliverables will include a final report detailing the purchase and installation of the communications upgrades. Indirect deliverables include lack of data flow to the CoAgMet network once the transition to packet switched data transfer occurs.

Billing and Invoicing

Sponsored programs at CSU will invoice CWCB directly for payment to reimburse our funds.

Budget and Justification:

The budget for this project is shown in Table 1. The majority of funds are being spent on the hardware upgrades and totals $33,762. These funds cover the cost of 42 new modems,

antennas, cables and increased battery capacity. One and a quarter months of staff time for CoAgMet technician, Wendy Ryan, is also being requested and totals $6,281. Salary includes fringe. Travel costs totaling $3,000 are also being requested to cover costs of travel to the 42 sites across the state of Colorado. The negotiated indirect cost rate of 15% has been applied to hardware, travel and salary.

A timeline of work is shown in table 2. Hardware will be ordered as soon as funding becomes available and is estimated to be March 2012. Once hardware is received it will be installed during annual maintenance visits from April 2012-June 2012.

Table 1: Budget for CoAgMet communications upgrade

Materials	**Unit Cost**	**Quantity**	**Total Cost**
Modem	$ 505	42	**$ 21,210**
Accessories (battery, cables, antenna, etc)	$ 299	42	**$ 12,552**
Total Equipment Cost			**$ 33,762**
Salary and Fringe	**Unit Per Month**	**Month**	**Total Cost**
Wendy Ryan	$ 3,979	1.25	**$ 4,973**
Fringe Rate	0.263		**$ 1,308**
Total Salary			**$ 6,281**
Travel	3,000		**$ 3,000**
Indirect Cost (15%)			**$ 6,457**
Total Cost			**$ 49,500**

Table 2: Timeline of work to be performed.

Timeline	Task
March 2012	Purchase Modem Upgrades
April 2012 - June 2012	Installation of Equipment