

FUNCTION: DOCID: PO PDA C150413 02/20/08 05:12:44 PM
 STATUS: REJCT BATID: ORG: 001-001 OF 001
 H- PURCHASE ORDER INPUT FORM

PO DATE: 02 20 08 ACCTG PRD: 08 08 BUDGET FY: 08
 ACTION: E PO TYPE: 1 COMMENTS: 08 PDA 00071
 VENDOR: 840646518 NAME: PARKER WATER & SANITATION DIST
 I/G IND: SELLER FUND: SELLER AGENCY:

CALCULATED DOC TOTAL: 150,000.00 DOC TOTAL: 150,000.00

LN	REF RQ	SUB APR	SUB	T
NO AGY / NUMBER /	LN FND AGY	ORG ORG CDE PGM	FUNC OBJ OBJ GBL	JOB/PROJ X
01- 01	424 PDA METR	H2B WTRC	5180 M413	1-31-13
02-	GRANT STUDY FARM MODEL		150,000.00	
03-	PDA			

A--*HP03-DOCUMENT ERRORS DETECTED 01-A037E-INVALID GRANT BUDGET LINE
 01-PUAPE-MISSING GRANT BUDGET LINE 01-HFL6E-GVAL ENTRY MISSING

*Ok new
me*

*P. J. King
4-29-08*

ACTION: R SCREEN: VEND USERID: I0T009

02/20/08 05:00:22 PM

VENDOR TABLE

KEY IS VENDOR CODE

VENDOR: 840646518 MISC: N TYPE:

NAME: PARKER WATER & SANITATION DIST

DBA:

ADDR: 19801 EAST MAIN STREET

CITY: PARKER ST: CO

ZIP: 80138 COUNTRY:

PHONE: 303 841 4627 FAX:

CONTACT:

COMMENT:

-----1099 NAME/ADDRESS -----

PARKER WATER & SANITATION DIST

19801 EAST MAIN STREET

CITY: PARKER ST: CO

ZIP: 80138 COUNTRY:

ORIG USR: I0A117	ORIG AGY: PAA	ORIG DATE: 10 29 01	FY END:	HOLD: N
TIN: 840646518	MASTER: Y	ENTITY TYPE: G	BWH-1:	EFT: N
W-9: PAA 10 25 01 V	1099: N	EMPLOYEE: N	BWH-2:	REMIT/PO: B
NAME CNTL: PARK	TIN TYPE: 1	TAX EXEMPT:	2ND B:	TEXT: N

REPT-1: MINORITY: N 000 %

REPT-2: WOMEN-OWNED: N 000 %

REPT-3: SMALL: N

IN-STATE: Y

COMMODITY: N

LAST VEND MOD: 10 29 01

LAST TX UPDATE: 07 17 07

State of Colorado, Colorado Water Conservation Board
Contract Routing Number (CLIN #): 08 PPA 00071
Contract No. 150413
Grant Amount: \$150,000

GRANT CONTRACT

THIS CONTRACT, by and between the State of Colorado, for the use and benefit of the Department of Natural Resources, Colorado Water Conservation Board, located at 1313 Sherman Street, Suite 721, Denver, Colorado 80203, (the "**State**"), and Parker Water and Sanitation District, a Colorado nonprofit corporation located at 19801 East Main Street, Parker, CO 80138, ("**Contractor**" or "**Grantee**").

FACTUAL RECITALS

- A. Authority exists in the law and funds have been budgeted, appropriated and otherwise made available and a sufficient unencumbered balance thereof remains available for encumbering and subsequent payment of this contract through the Colorado Financial Reporting Systems (COFRS).
- B. Required approval, clearance and coordination have been accomplished from and with appropriate agencies.
- C. Grantee's bid was selected in accordance with Colorado law and State Procurement Rules pursuant to the issuance of a grant which was awarded to Grantee by the Colorado Water Conservation Board on September 19, 2007;
- D. Authority for the agency entering into this Contract arises from Colorado Revised Statutes (CRS) 39-29-109(1)(a)(III), 37-75-102 and 37-74-104(2)(c) and Senate Bill 06-179 adopted by the 2006 General Assembly.
- E. The State has allocated grant funds to study how rotational crop management and innovative irrigation cropping system techniques will provide additional renewable water supplies to the Grantee's service area. Grantee is ready, willing and able to provide such a task.

NOW THEREFORE, in consideration of and subject to the terms, conditions, provisions and limitations contained in this contract, the State and Contractor agree as follows:

AGREEMENT

1. Definitions

The following terms as used in this contract shall be construed and interpreted as follows, unless the context otherwise expressly requires a different construction and interpretation:

- 1.1. "**Compensation**" means the funds payable to Contractor by the State which are related to the Goods and Services set forth in the Scope of Work set forth in **Exhibit A**, attached hereto and incorporated herein.
- 1.2. "**Contract**" means this contract for Services, its terms and conditions, attached exhibits, documents incorporated by reference under the terms of this contract, and any future modifying agreements, exhibits, attachments or references that are incorporated pursuant to State Fiscal Rules and Policies.

- 1.3. **"Exhibit"** means a statement of work document, schedule, budget, or other identified exhibit which has been incorporated into and attached to this contract.
- 1.4. **"Goods"** means anything that is produced or manufactured and that is obtained by the State, either in and of itself, or in conjunction with services.
- 1.5. **"Services"** means services performed or tangible material produced or delivered in the performance of services.

BASIC CONTRACT TERMS

2. Statement of Work

Contractor shall perform the Services described in **Exhibit A**, Scope of Work.

3. Performance Standard

Contractor shall perform the Services described in **Exhibit A**, Scope of Work, in accordance with the highest standard of care, skill and diligence provided by a professional person or company in performance of work similar to the Services, and all services, and all consumables, products, and materials used in performance of the Services shall be of good quality and free from faults and defects. Contractor warrants that (a) services or goods provided under this contract shall meet the description in **Exhibit A**, Scope of Work, (b) there are no pending or threatened suits, claims, or actions of any type with respect to the services or goods provided and (c) the services and goods shall be free and clear of any liens, encumbrances, or claims arising by or through Contractor or any party related to Contractor.

4. Performance Term

- 4.1. This contract shall be effective upon approval by the Colorado State Controller, or designee (the "Effective Date") and extend through December 31, 2009. Performance of this contract shall commence as soon as practicable after the Effective Date and shall be undertaken and performed in the sequence and manner set forth in **Exhibit A**, Scope of Work.
- 4.2. In the event the State desires to continue the Services and a replacement contract has not been fully approved by the termination date of this contract, the State, upon written notice to Contractor, may unilaterally extend this contract for a period of up to three (3) months. The contract shall be extended under the same terms and conditions as the original contract, including, but not limited to prices, rates and service delivery requirements. This extension shall terminate at the end of the three (3) month period or when the replacement contract is signed by the Colorado State Controller or an authorized delegate.

5. Grant Award (Compensation)

- 5.1. Payment of compensation pursuant to this contract will be made as earned, in whole or in part, from available State funds encumbered in a maximum amount not to exceed \$150,000 for the performance of the Services required by this contract and **Exhibit A**, Scope of Work. Satisfactory performance under the terms of this contract shall be a condition precedent to the State's obligation to compensate Contractor.
- 5.2. The maximum compensation payable under this contract and under any renewal hereof, shall include all Contractor fees, costs and expenses.
- 5.3. The State shall not be liable to Contractor for payment of work or services or for costs or expenses incurred by Contractor prior to the "Effective Date".

5.4. The maximum amount available for the purchase of Services shall be \$150,000 in fiscal years 2008 through 2010.

6. Availability of Funds

This contract is contingent upon the continuing availability of State appropriations as provided in Section 2 of the Colorado Special Provisions, incorporated as a part of this contract. The State is prohibited by law from making fiscal commitments beyond the term of its current fiscal period. If Federal appropriations or grants fund this contract in whole or in part, the contract is subject to and contingent upon the continuing availability of appropriated Federal funds for this contract. If State of Colorado or Federal funds are not appropriated, or otherwise become unavailable to fund this contract, the State may immediately terminate the contract in whole or in part without further liability.

PROCEDURES FOR AND OBLIGATIONS OF CONTRACT PERFORMANCE

7. Billing/Payment Procedure

- 7.1. The State shall establish billing procedures and pay Contractor the contract price or rate for Services performed, reviewed, and accepted or Goods delivered, inspected, and accepted pursuant to all the terms and conditions of this contract, including without limitation, performance, quality, milestones and completion requirements for payment set forth in **Exhibit A**, Scope of Work, and the State's inspection and acceptance rights in Section 8. Contractor shall submit invoices for payment on forms and provide requested documentation in a manner prescribed or approved by the State. Payments pursuant to this contract shall be made as earned, in whole or in part, from available funds encumbered for the purchase of the described Services and Goods. Incorrect payments by the State to Contractor due to omission, error, fraud, or defalcation shall be recovered from Contractor by deduction from subsequent payments under this contract or other contracts between the State and Contractor or collected as a debt due to the State.
- 7.2. Invoices and payments shall be mailed using the US Postal Service or other delivery service with a properly addressed stamped envelop to the address specified by the Contractor on form W-9 or other similar form and by the State in its billing procedures.
- 7.3. The State shall make payment in full with respect to each invoice within forty-five (45) days of receipt thereof; provided that the amount invoiced represents Goods and/or Services which have been accepted by the State and the form of the invoice is acceptable to the State. Uncontested amounts not paid by the State within forty-five (45) days shall bear interest on the unpaid balance beginning with the forty-sixth (46th) day at a rate of one percent (1%) per month until paid in full; provided, however, that no interest shall accrue with respect to unpaid amounts for which the State has delivered to Contractor notice of a good faith dispute. Contractor shall invoice the State separately for accrued interest on delinquent amounts. The billing shall reference the delinquent payment, the number of day's interest to be paid and the applicable interest rate.

8. Inspection and Acceptance

The State reserves the right to inspect Services provided under this contract at all reasonable times and places during the term of this contract, including any extensions. If any of the Services does not conform to contract requirements, the State may require Contractor to promptly perform the Services again in conformity with contract requirements, at no additional cost to the State. When defects in the quality or quantity of Services cannot be corrected by re-performance, the State may:

- (a) require Contractor to take necessary action to ensure that future performance conforms to this contract requirements; and
- (b) equitably reduce the payment due to Contractor to reflect the reduced value of the Services performed.

These remedies shall in no way limit the remedies available to the State in other provisions of this contract

or remedies otherwise available in equity or at law, all of which may be exercised by the State, at its option, in lieu of or in conjunction with the preceding measures. Furthermore, the reduction, delay or denial of payment under this provision shall not constitute a breach of contract or default by the State.

9. Reporting

Unless otherwise provided in this contract or the exhibits hereto, Contractor shall submit, on a quarterly basis and upon termination or completion of work, a written progress report analyzing the performance under this contract and specifying progress made for each activity identified in Contractor's duties and obligations. Such written analysis shall be in accordance with the procedures developed and prescribed by the State. The preparation of reports in a timely manner shall be the responsibility of Contractor and failure to comply may result in the delay of payment of funds and/or termination of this contract. Required reports shall be submitted to the State not later than the end of each calendar quarter, or at such time as otherwise specified. Notwithstanding anything herein to the contrary, including without limitation the priority provisions set forth in Section 35, specific reporting requirements set forth in **Exhibit A**, Scope of Work, or in other exhibits to this contract, shall take precedence over this general reporting provision.

10. Rights in Data, Documents, and Computer Software

- 10.1 Any software, research, reports, studies, data, photographs, negatives or other documents, drawings, models, materials, or work product of any type, including drafts, prepared by Contractor in the performance of its obligations under this contract (the "Work Product"), shall be the exclusive property of the State and all Work Product shall be delivered to the State by Contractor upon completion, termination, or cancellation of this contract. The rights of the State with respect to such Work Product shall include, but not be limited to, the right to copy, publish, display, transfer, prepare derivative works, or otherwise use such Work.
- 10.2 Contractor shall not use, willingly allow, cause or permit such property to be used for any purpose other than the performance of Contractor's obligations under this contract, without the prior written consent of the State. The rights of the State with respect to such property shall include, but not be limited to, the right to copy, publish, display, transfer, prepare derivative works, or otherwise use such property.

11. Maintenance, Inspection and Monitoring of Records

- 11.1 Contractor shall maintain a complete file of all records, documents, communications, notes and other written materials or electronic media, files or communications, which pertain in any manner to the operation of programs or the delivery of Services or Goods under this contract, and shall maintain such records for a period of three (3) years after the date of termination of this contract or final payment hereunder, whichever is later, or for such further period as may be necessary to resolve any matters which may be pending, or until an audit has been completed; provided, that if an audit by or on behalf of the Federal and/or Colorado State government has begun but is not completed or audit findings have not been resolved after a three (3) year period, such materials shall be retained until the resolution of the audit findings.

- 11.2 Contractor shall permit the State, the Federal Government or any other duly authorized agent of a governmental agency to audit, inspect, examine, excerpt, copy and/or transcribe Contractor's records during the term of this contract and for a period of three (3) years following termination of this contract or final payment hereunder, whichever is later, to assure compliance with the terms hereof or to evaluate Contractor's performance hereunder.
- 11.3 Contractor also shall permit these same described entities to monitor all activities conducted by Contractor pursuant to the terms of this contract. As the monitoring agency, in its sole discretion, may deem necessary or appropriate, such monitoring may consist of internal evaluation procedures, examination of program data, special analyses, on-site checking, formal audit examinations, or any other reasonable procedure. All such monitoring shall be performed in a manner that will not unduly interfere with contract performance.

12. Confidentiality of State Records and Information

- 12.1 Contractor acknowledges that it may come into contact with confidential information in connection with this contract or in connection with the performance of its obligations under this contract, including but not limited, to personal records and information of individuals. It shall be the responsibility of Contractor to keep all State records and information confidential at all times and to comply with all Colorado State and Federal laws and regulations concerning the confidentiality of information to the same extent applicable to the State. Any request or demand for information in the possession of Contractor made by a third party who is not an authorized party to this contract shall be immediately forwarded to the State's principal representative for resolution.
- 12.2 Contractor shall notify all of its agent, employees, subcontractors and assigns who will come into contact with State information that they are subject to the confidentiality requirements set forth herein, and shall provide each with a written explanation of the requirements before they are permitted to access information or data. Contractor shall provide and maintain a secure environment that ensures confidentiality of all State records and information wherever located. No State information of any kind shall be distributed or sold to any third party or used by Contractor or its agents in any way, except as authorized by the contract and as approved by the State. State information shall not be retained in any files or otherwise by Contractor or its agents, except as set forth in this contract and approved by the State. Disclosure of State records or information may be cause for legal action against Contractor or its agents. Defense of any such action shall be the sole responsibility of Contractor.

13. Litigation Reporting

Contractor, within ten (10) days after being served with a summons, complaint, or other pleading in a case which involves Services provided or Contractor's performance under this contract, which has been filed in any Federal or state court or administrative agency, shall deliver copies of such document to the State's principal representative, or in absence of such designation, to the chief executive officer of the department, agency, or institution executing this contract on behalf of the State.

14. Conflict of Interest.

- 14.1 During the term of this contract, Contractor shall not engage in any business or personal activities or practices or maintain any relationships which conflict in any way with the full performance of Contractor's obligations under this contract.
- 14.2 Additionally, Contractor acknowledges that in governmental contracting, even the appearance of a conflict of interest is harmful to the interests of the State. Thus, Contractor shall refrain from any practices, activities or relationships that could reasonably be considered to be in conflict with the full performance of Contractor's obligations to the State in accordance with the terms and conditions of this contract, without the prior written approval of the State.

- 14.3. In the event that Contractor is uncertain whether the appearance of a conflict of interest may reasonably exist, Contractor shall submit to the State a full disclosure statement setting forth the relevant details for the State's consideration and direction. Failure to promptly submit a disclosure statement or to follow the State's direction in regard to the apparent conflict shall be grounds for termination of the contract.
- 14.4. Contractor and subcontractors, permitted under the terms of this contract, shall maintain a written code of standards governing the performance of their respective employees engaged in the award and administration of contracts. No employee, officer or agent of Contractor or any permitted subcontractor shall participate in the selection, or in the award or administration of a contract or subcontract supported by Federal funds if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when:
- (a) an employee, officer or agent;
 - (b) any member of the employee's immediate family;
 - (c) an employee's partner; or
 - (d) an organization, which employs, or is about to employ, any of the above,
- has a financial or other interest in the firm selected for award. Contractor's or subcontractor's officers, employees, or agents shall neither solicit nor accept gratuities, favors, or anything of monetary value from Contractor, potential contractors, or parties to sub-agreements.

REPRESENTATIONS AND WARRANTIES

15. Warranties. During the term of this contract and for a period of twelve (12) months following the State's final acceptance under this contract, Contractor warrants as follows:

- 15.1 All Services under this Contract shall be performed in accordance with the specifications set forth in this contract and **Exhibit A** and in a manner acceptable to the State. Contractor shall re-perform any Services that fail to satisfy this warranty.
- 15.2 All deliverables delivered under this contract by Contractor shall meet the specifications set forth in this contract and **Exhibit A**. Contractor shall correct or replace any deliverables which fail to satisfy this warranty.

The foregoing warranties and such other warranties as may be set forth in **Exhibit A**, Scope of Work, are a part of the minimum work requirements of this contract, and as such will be at no additional cost to the State.

16. Licenses, Permits, and Responsibilities

Contractor certifies that, at the time of entering into this contract, it has currently in effect all necessary licenses, certifications, approvals, insurance, permits, and other authorizations required to properly perform the Services and/or deliver the Goods covered by this contract. Contractor warrants that it shall maintain all necessary licenses, certifications, approvals, insurance, permits, and other authorizations required to properly perform this contract, without reimbursement by the State or other adjustment in contract price. Additionally, all employees of Contractor performing services under this contract shall hold the required licenses or certification, if any, to perform their responsibilities. Contractor, if a foreign corporation or other entity transacting business in the State of Colorado, further certifies that it currently has obtained and shall maintain any applicable certificate of authority to do business in the State of Colorado and has designated a registered agent in Colorado to accept service of process. Any revocation, withdrawal or non-renewal of licenses, certifications, approvals, insurance, permits or any such similar requirements necessary for Contractor to properly perform this contract, shall be deemed to be a default by Contractor and grounds for termination of this contract by the State.

17. Tax Exempt Status

Contractor acknowledges that the State of Colorado is not liable for any sales, use, excise, property or other taxes imposed by any Federal, State or local government tax authority. The State also is not liable for any Contractor franchise or income related tax. No taxes of any kind shall be charged to the State.

18. Legal Authority

Contractor warrants that it possesses the legal authority to enter into this contract and that it has taken all actions required by its procedures, by-laws, and/or applicable laws to exercise that authority, and to lawfully authorize its undersigned signatory to execute this contract and to bind Contractor to its terms. Contractor agrees it shall submit voluntarily to the personal jurisdiction of the Federal and State courts in the State of Colorado and venue in the City and County of Denver, Colorado. The person(s) executing this contract on behalf of Contractor warrant(s) that such person(s) have full authorization to execute this contract.

19. Compliance with Applicable Law

19.1 Contractor shall at all times during the execution of this contract strictly adhere to, and comply with, all applicable Federal and Colorado State laws, and their implementing regulations, as they currently exist and may hereafter be amended, which laws and regulations are incorporated herein by this reference as terms and conditions of this contract. Contractor also shall require compliance with such laws and regulations by subcontractors under subcontracts permitted under this contract.

REMEDIES

20. Remedies

In addition to any other remedies provided for in this contract, and without limiting the remedies otherwise available at law or in equity, the State may exercise the following remedial actions if Contractor substantially fails to satisfy or perform the duties and obligations in this contract. "Substantial failure" to satisfy duties and obligations shall be defined to mean material, insufficient, incorrect or improper performance, activities, or inaction by Contractor. These remedial actions are as follows:

- (a) Suspend Contractor's performance pending necessary corrective action as specified by the State, without Contractor's entitlement to adjustment in price/cost or schedule. Furthermore, at the State's option, a directive to suspend may include suspension of this entire contract or any particular part of this contract that the State determines in good faith would not be beneficial or in the State's best interests due to Contractor's substantial non-performance. Accordingly, the State shall not be liable to Contractor for costs incurred after the State has duly notified Contractor of the suspension of performance under this provision, and Contractor shall promptly cease performance and incurring costs in accordance with the State's directive;
- (b) Withhold payment to Contractor until the necessary Services or corrections in performance, development or manufacture are satisfactorily completed;
- (c) Request the removal from work on this contract of employees or agents of Contractor identified by the State, in its reasonable judgment, as being incompetent, careless, insubordinate, unsuitable, or otherwise unacceptable, or whose continued employment on this contract the State deems to be contrary to the public interest or not in the best interests of the State;
- (d) Deny payment for those Services or obligations which have not been performed which have not been provided and which, due to circumstances caused by Contractor, cannot be performed, or if performed would be of no value to the State. Denial of the amount of payment must be reasonably related to the value of work or performance lost to the State; and/or
- (e) Terminate this contract for default.

The above remedies are cumulative and the State, in its sole discretion, may exercise any or all of them individually or simultaneously.

21. Termination for Convenience

21.1 When the interests of the State so require, the State may terminate this contract in whole or in part, for the convenience of the State. The State shall give written notice of termination to Contractor specifying the termination of all or a portion of this contract and the effective date of such. Exercise by the State of this termination for convenience provision shall not be deemed a breach of contract by the State. Upon receipt of written notice, Contractor shall incur no further obligations in connection with the terminated work and, on the date set in the notice of termination, Contractor shall stop work to the extent specified. Contractor also shall terminate outstanding orders and subcontracts as they relate to the terminated work. All finished or unfinished documents, data, studies, research, surveys, drawings, maps, models, photographs, and reports or other materials prepared by Contractor under this contract shall, at the option of the State, be delivered by Contractor to the State and shall become the State's property. The State may direct Contractor to assign Contractor's right, title, and interest under terminated orders or subcontracts to the State. Contractor shall complete and deliver to the State the work not terminated by the notice of termination and may incur obligations as are necessary to do so within the contract terms.

21.2 If this contract is terminated by the State as provided herein, Contractor shall be paid an amount which bears the same ratio to the total compensation as the Services satisfactorily performed or the deliverables satisfactorily delivered or installed bear to the total Services or deliverables covered by this contract, less payments of compensation previously made. In addition, for contracts that are less than 60% completed, the State may reimburse the contractor for a portion of actual out-of-pocket expenses (not otherwise reimbursed under this contract) incurred by Contractor during the contract period which are directly attributable to the uncompleted portion of Contractor's obligations covered by this contract. In no event shall reimbursement under this clause exceed the contract amount. If this contract is terminated for cause, or due to the fault of the Contractor, the Termination for Cause or Default provision shall apply.

22. Termination for Default/Cause

If Contractor refuses or fails to perform any of the provisions of this contract with such diligence as will ensure its completion within the time and pursuant to the requirements and terms specified in this contract, the State may notify Contractor in writing of such non-performance. If Contractor fails to promptly correct such delay or non-performance within the time specified, the State, may at its option, terminate this entire contract or such part of this contract as to which there has been delay or a failure to properly perform. If terminated for cause, the State shall only reimburse Contractor for accepted work or deliverables received up to the date of termination and final payments may be withheld. In the event of termination, all finished or unfinished documents, data, studies, research surveys, reports, other materials prepared by Contractor, or materials owned by the State in the possession of Contractor, at the option of the State, shall be returned immediately to the State or retained by the State as its property. At the State's option, Contractor shall continue performance of this contract to the extent not terminated, if any, and shall be liable for excess costs incurred by the State in procuring from third parties replacement services or substitute goods as cover. Notwithstanding any remedial action by the State, Contractor also shall remain liable to the State for any damages sustained by the State by virtue of any breach by Contractor and the State may withhold any payment to Contractor for the purpose of mitigating the State's damages, until such time as the exact amount of damages due to the State from Contractor is determined. Upon termination by the State, Contractor shall take timely, reasonable and necessary action to protect and preserve property in the possession of Contractor in which the State has an interest. Further, the State may withhold amounts due to Contractor as the State deems necessary to protect the State against loss because of outstanding liens or claims of former lien holders and to reimburse the State for the excess costs incurred in procuring similar goods or services. Any action taken by the State hereunder or pursuant to paragraph 15 shall not be cause for Contractor to terminate this Contract for default or material breach. If, after termination by the State, it is determined for any reason that Contractor was not in default or that Contractor's action/inaction was excusable, such termination shall be treated as a termination for convenience and the rights and obligations of the parties shall be the same as if this contract had been terminated for convenience, as described herein.

23. Insurance

- 23.1 The Contractor shall obtain, and maintain at all times during the term of this agreement, insurance in the following kinds and amounts:
- a. Worker's Compensation Insurance as required by state statute, and Employer's Liability Insurance covering all of the Contractor's employees acting within the course and scope of their employment.
 - b. Commercial General Liability Insurance written on ISO occurrence form CG 00 01 10/93 or equivalent, covering premises operations, fire damage, independent contractors, products and completed operations, blanket contractual liability, personal injury, and advertising liability with minimum limits as follows:
 - i. \$1,000,000 each occurrence;
 - ii. \$1,000,000 general aggregate;
 - iii. \$1,000,000 products and completed operations aggregate; and
 - iv. \$50,000 any one fire.
- If any aggregate limit is reduced below \$1,000,000 because of claims made or paid, the contractor shall immediately obtain additional insurance to restore the full aggregate limit and furnish to the State a certificate or other document satisfactory to the State showing compliance with this provision.
- c. Automobile Liability Insurance covering any auto (including owned, hired and non-owned autos) with a minimum limit as follows: \$1,000,000 each accident combined single limit.
- 23.2 The State of Colorado shall be named as additional insured on the Commercial General Liability and Automobile Liability Insurance policies (leases and construction contracts will require the additional insured coverage for completed operations on endorsements CG 2010 11/85, CG 2037, or equivalent). Coverage required of the contract will be primary over any insurance or self-insurance program carried by the State of Colorado.
- 23.3 The Contractor will require all insurance policies in any way related to the contract and secured and maintained by the Contractor to include clauses stating that each carrier will waive all rights of recovery, under subrogation or otherwise, against the State of Colorado, its agencies, institutions, organizations, officers, agents, employees and volunteers.
- 23.4 All policies evidencing the insurance coverages required hereunder shall be issued by insurance companies satisfactory to the State.
- 23.5 The Contractor shall provide certificates showing insurance coverage required by this contract to the State within 7 business days of the effective date of the contract, but in no event later than the commencement of the services under the contract. No later than 15 days prior to the expiration date of any such coverage, the contractor shall deliver the State certificates of insurance evidencing renewals thereof. At any time during the term of this contract, the State may request in writing, and the contractor shall thereupon within 10 days supply to the State, evidence satisfactory to the State of compliance with the provisions of this section.
- 23.6 Notwithstanding subsection (a) of this section, if the Contractor is a "public entity" within the meaning of the Colorado Governmental Immunity Act, CRS 24-10-101, et seq., as amended ("Act"), the contractor shall at all times during the term of this contract maintain only such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Act. Upon request by the State, the contractor shall show proof of such insurance satisfactory to the State.

24. Governmental Immunity

Notwithstanding any other provision of this contract to the contrary, no term or condition of this contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protection, or other provisions of the Governmental Immunity Act. The parties understand and agree that liability for claims for injuries to persons or property arising out of negligence of the State of Colorado, its departments, institutions, agencies, boards, officials and employees is controlled and limited by the provisions of sections 24-10-101, *et seq.*, C.R.S., as now or hereafter amended and the risk management statutes, sections 24-30-1501, *et seq.*, C.R.S., as now or hereafter amended.

25. Force Majeure

Neither Contractor nor the State shall be liable to the other for any delay in, or failure of performance of, any covenant or promise contained in this contract, nor shall any delay or failure constitute default or give rise to any liability for damages if, and only to the extent that, such delay or failure is caused by "force majeure." As used in this contract "force majeure" means acts of God; acts of the public enemy; public health/safety emergency acts of the State or any governmental entity in its sovereign capacity; fires; floods, epidemics; quarantine restrictions; strikes or other labor disputes; freight embargoes; or unusually severe weather.

MISCELLANEOUS PROVISIONS

26. Representatives

Each individual identified below is the principal representative of the designating party. All notices required to be given to a party pursuant to this contract shall be hand delivered with receipt required or sent by certified or registered mail to such party's principal representative at the address for such party set forth below. Either party may from time to time designate by written notice substitute addresses or persons to whom such notices shall be sent.

For the State:

Name: Rick Brown

Title: Section Chief, Intrastate Water Management and Development, CWCB

Address: 1313 Sherman Street, Room 721, Denver, CO 80203

Telephone: (303) 866-3514

For Contractor:

Name: Frank Jaeger

Title: District Manager, Parker Water and Sanitation District

Address: 19801 East Main Street, Parker, CO 80138

Telephone: (303) 841-8992

27. Assignment and Successors

Unless otherwise specified in **Exhibit A**, Scope of Work, Contractor's rights and obligations under this contract shall be deemed to be personal and may not be transferred, assigned or subcontracted without the prior, written consent of the State, which shall not be unreasonably withheld. Any attempt at assignment, transfer or subcontracting without such consent shall be void, except that Contractor may assign the right to receive payments from the State pursuant to section 4-9-318, C.R.S. All subcontracts and subcontractors consented to by the State shall be made subject to the requirements, terms and conditions of this contract. Contractor alone shall be responsible for all subcontracting arrangements, directions and delivery of subcontracted work or Goods, and performance of any subcontracted Services. Contractor shall require and ensure that each subcontractor shall assent in writing to all the terms and conditions of this contract, including an obligation of the subcontractor to indemnify the State as is required under Section 3 of the Colorado Special Provisions, incorporated as a part of this contract.

28. Third Party Beneficiaries

The enforcement of the terms and conditions of this contract and all rights of action relating to such enforcement shall be strictly reserved to the State and Contractor. Nothing contained in this contract shall

give or allow any claim or right of action whatsoever by any third person. It is the express intention of the State and Contractor that any such person or entity, other than the State or Contractor, receiving services or benefits under this contract shall be deemed an incidental beneficiary only.

29. Severability

To the extent this contract may be executed and performance of the obligations of the parties may be accomplished within the intent of the contract, the terms of this contract are severable. Should any term or provision hereof be declared invalid or become inoperative for any reason, such invalidity or failure shall not affect the validity of any other term or provision hereof.

30. Waiver

The waiver of any breach of a term, provision, or requirement of this contract shall not be construed or deemed as waiver of any subsequent breach of such term, provision, or requirement, or of any other term, provision, or requirement.

31. Entire Understanding

This contract is intended as the complete integration of all understandings between the parties. No prior or contemporaneous addition, deletion, or other amendment hereto shall have any force or effect whatsoever, unless embodied herein in writing. No subsequent novation, renewal, addition, deletion, or other amendment hereto shall have any force or effect unless embodied in a writing executed and approved pursuant to the Colorado State Fiscal Rules.

32. Survival of Certain Contract Terms

Notwithstanding anything herein to the contrary, all terms and conditions of this contract, including but not limited to its exhibits and attachments, which may require continued performance, compliance, or effect beyond the termination date of the contract, shall survive such termination date and shall be enforceable by the State in the event of the Contractor's failure to perform or comply as required.

33. Modification and Amendment

32.1 This contract is subject to such modifications as may be required by changes in Federal or Colorado State law, or their implementing regulations. Any such required modification automatically shall be incorporated into and be part of this contract on the Effective Date of such change, as if fully set forth herein.

32.2 Except as specifically provided in this contract, no modification of this contract shall be effective unless agreed to in writing by both parties in an Amendment to this contract, properly executed and approved in accordance with Colorado State law and State Fiscal Rules.

34. Venue

Venue for any action related to performance of this contract shall be in the City and County of Denver, Colorado.

35. Order of Precedence

The provisions of this contract shall govern the relationship of the State and Contractor. In the event of conflicts or inconsistencies between this contract and its exhibits or attachments, such conflicts or inconsistencies shall be resolved by reference to the documents in the following order of priority:

- (a) Colorado Special Provisions, pages 12 to 13.
- (b) Remaining pages of the contract, pages 1 to 11.
- (c) **Exhibit A**, Statement of Work.

SPECIAL PROVISIONS

The Special Provisions apply to all Contracts except where noted in *italics*.

1. **CONTROLLER'S APPROVAL. CRS 24-30-202 (1).** This Contract shall not be deemed valid until it has been approved by the Colorado State Controller or designee.
2. **FUND AVAILABILITY. CRS 24-30-202(5.5).** Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.
3. **INDEMNIFICATION.** To the extent allowed by law, Contractor shall indemnify, save, and hold harmless the State, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and attorney fees and related costs, incurred as a result of any act or omission by Contractor, or its employees, agents, subcontractors, or assignees pursuant to the terms of this Contract.
[Applicable Only to Intergovernmental Contracts] No term or condition of this Contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protection, or other provisions, of the Colorado Governmental Immunity Act, CRS 24-10-101 et seq., or the Federal Tort Claims Act, 28 U.S.C. 2671 et seq., as applicable, as now or hereafter amended.
4. **INDEPENDENT CONTRACTOR. 4 CCR 801-2.** Contractor shall perform its duties hereunder as an independent Contractor and not as an employee. Neither Contractor nor any agent or employee of Contractor shall be or shall be deemed to be an agent or employee of the state. Contractor shall pay when due all required employment taxes and income taxes and local head taxes on any monies paid by the state pursuant to this Contract. Contractor acknowledges that Contractor and its employees are not entitled to unemployment insurance benefits unless Contractor or a third party provides such coverage and that the state does not pay for or otherwise provide such coverage. Contractor shall have no authorization, express or implied, to bind the state to any agreement, liability or understanding, except as expressly set forth herein. Contractor shall provide and keep in force workers' compensation (and provide proof of such insurance when requested by the state) and unemployment compensation insurance in the amounts required by law and shall be solely responsible for its acts and those of its employees and agents.
5. **NON-DISCRIMINATION.** Contractor agrees to comply with the letter and the spirit of all applicable State and federal laws respecting discrimination and unfair employment practices.
6. **CHOICE OF LAW.** The laws of the State of Colorado, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Contract. Any provision of this Contract, whether or not incorporated herein by reference, which provides for arbitration by any extra-judicial body or person or which is otherwise in conflict with said laws, rules, and regulations shall be considered null and void. Nothing contained in any provision incorporated herein by reference which purports to negate this or any other special provision in whole or in part shall be valid or enforceable or available in any action at law, whether by way of complaint, defense, or otherwise. Any provision rendered null and void by the operation of this provision will not invalidate the remainder of this Contract, to the extent that this Contract is capable of execution. At all times during the performance of this Contract, Contractor shall strictly adhere to all applicable federal and State laws, rules, and regulations that have been or may hereafter be established.
7. **[Not Applicable to Intergovernmental Contracts] VENDOR OFFSET. CRS 24-30-202 (1) and 24-30-202.4.** The State Controller may withhold payment of certain debts owed to State agencies under the vendor offset intercept system for: (a) unpaid child support debt or child support arrearages; (b) unpaid balances of tax, accrued interest, or other charges specified in Article 21, Title 39, CRS; (c) unpaid loans due to the Student Loan Division of the Department of Higher Education; (d) amounts required to be paid to the Unemployment Compensation Fund; and (e) other unpaid debts owing to the State or its agencies, as a result of final agency determination or reduced to judgment, as certified by the State Controller.

8. **SOFTWARE PIRACY PROHIBITION. Governor's Executive Order D 002 00.** No State or other public funds payable under this Contract shall be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Contractor hereby certifies that, for the term of this Contract and any extensions, Contractor has in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Contractor is in violation of this paragraph, the State may exercise any remedy available at law or equity or under this Contract, including, without limitation, immediate termination of this Contract and any remedy consistent with federal copyright laws or applicable licensing restrictions.

9. **EMPLOYEE FINANCIAL INTEREST. CRS 24-18-201 and 24-50-507.** The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Contract.

10. **[Not Applicable to Intergovernmental Contracts]. ILLEGAL ALIENS – PUBLIC CONTRACTS FOR SERVICES AND RESTRICTIONS ON PUBLIC BENEFITS. CRS 8-17.5-101 and 24-76.5-101.** Contractor certifies that it shall comply with the provisions of CRS 8-17.5-101 et seq. Contractor shall not knowingly employ or Contract with an illegal alien to perform work under this Contract or enter into a Contract with a subcontractor that fails to certify to Contractor that the subcontractor shall not knowingly employ or Contract with an illegal alien to perform work under this Contract. Contractor represents, warrants, and agrees that it (i) has verified that it does not employ any illegal aliens, through participation in the Basic Pilot Employment Verification Program administered by the Social Security Administration and Department of Homeland Security, and (ii) otherwise shall comply with the requirements of CRS 8-17.5-102(2)(b). Contractor shall comply with all reasonable requests made in the course of an investigation under CRS 8-17.5-102 by the Colorado Department of Labor and Employment. Failure to comply with any requirement of this provision or CRS 8-17.5-101 et seq., shall be cause for termination for breach and Contractor shall be liable for actual and consequential damages.

Contractor, if a natural person eighteen (18) years of age or older, hereby swears or affirms under penalty of perjury that he or she (i) is a citizen or otherwise lawfully present in the United States pursuant to federal law, (ii) shall comply with the provisions of CRS 24-76.5-101 et seq., and (iii) shall produce one form of identification required by CRS 24-76.5-103 prior to the Effective Date of this Contract.

Revised October 25, 2006

Effective Date of Special Provisions: August 7, 2006

THE PARTIES HERETO HAVE EXECUTED THIS CONTRACT

GRANTEE:

STATE OF COLORADO:

BILL RITTER, JR. GOVERNOR

Parker Water and Sanitation District

By *Phil B...*
For Executive Director, Department of Natural Resources

84-0646518
FEIN

Date 4-14-08

Frank Jaeger
Signature of Authorized Officer

Frank Jaeger, District Manager
(Print) Name & Title of Authorized Officer

Date February 6, 2008

LEGAL REVIEW:
Attorney General, John W. Suthers

By *WJA*

CORPORATIONS:
(A corporate attestation is required.)

Attest (Seal) By *Leslie M. Shenefelt*
(Corporate Secretary or Equivalent, or Town/City/County Clerk)



ALL CONTRACTS MUST BE APPROVED BY THE STATE CONTROLLER

CRS 24-30-202 requires that the State Controller approve all state Contracts. This Contract is not valid until the State Controller, or such assistant as he may delegate, has signed it. The Contractor is not authorized to begin performance until the Contract is signed and dated below. If performance begins prior to the date below, the State of Colorado may not be obligated to pay for the goods and/or services provided.

STATE CONTROLLER
~~Leslie M. Shenefelt~~ David J. McDermott, CPA

By *Dianne C. Stump*
Date 4-29-08

Exhibit A

Scope of Work

WATER ACTIVITY NAME

Developing a Model to Sustain Irrigated Agriculture
While Meeting Increasing Urban Water Demand in Colorado, a cooperative project by
Parker Water and Sanitation District and Colorado State University.

GRANT RECIPIENT

Parker Water and Sanitation District

FUNDING SOURCE

Basin Account (Metro Roundtable)

BACKGROUND

The Parker Water and Sanitation District (PWSD) is a Title 32 Special District, formed in 1962, which provides water and wastewater services to a service area in the southeastern metropolitan area. PWSD's DRCOG service area is 21,240 acres. Currently, PWSD serves approximately 14,000 single family equivalents (SFEs) while, at buildout, is expected to serve over 45,000 SFEs with a population estimated to be 125,000. Current water usage in PWSD, based on PWSD's planning criterion of 0.7 ac-ft/yr/SFE, is approximately 9,800 ac-ft/yr, and this demand will grow to approximately 31,775 ac-ft/yr. PWSD is currently primarily reliant on the non-renewable resources of the Denver Basin, but minimizes use of this water by (a) reuse through its augmentation plan, (b) water conservation, (c) development of local renewable resources of Cherry Creek, and (d) water management through surface water storage in Rueter-Hess Reservoir. Even with these water management and conservation plans, PWSD will still need to develop additional renewable water supplies in the future to continue to provide reliable water supplies to its customers. PWSD's infrastructure is funded currently by charging inclusion fees for new developments, tap fees for new hookups, and a water resources toll to cover water supply issues with new developments. Service charges are only used to meet operation costs. PWSD employs a block-rate water fee structure that encourages conservation by increasing costs for use above base levels.

Ultimately, PWSD would like to provide additional renewable water supplies to the PWSD service area in Douglas County to reduce or supplant the use of non-renewable water resources. Because of the growth expected in PWSD and the reliance on Denver Basin water, which SWSI identified as raising serious reliability and sustainability concerns, PWSD is trying to reduce its dependence on these non-renewable resources. As SWSI points out, there is going to be increased competition for water, and in-basin solutions and conservation should be the initial steps used to help meet future municipal

demands. PWSD has already accomplished these tasks. PWSD has appropriated all of the remaining in-priority water in Cherry Creek, its local renewable water supply, and will manage the use of this water and its available reusable water, through Rueter-Hess Reservoir. PWSD has also implemented an aggressive water conservation plan that has resulted in a 40 percent reduction of water demand over the past 15 years.

These plans, while reducing the use of Denver Basin water, are not enough to fully reduce PWSD's dependence on non-renewable resources. PWSD recognizes that additional renewable water supplies can be developed from the agricultural sector, but wishes to do it in a manner that minimizes the effects on the rural economy. It is for this reason that PWSD has partnered with Colorado State University (CSU) to evaluate means to make historic consumptive use water from agriculture available to PWSD, and potentially other municipal water providers, while still maintaining viable farming operations. PWSD is not interested in the "buy and dry" concept that has historically been used to take water from irrigated farmland.

The proposed 3-year PWSD/CSU cooperative research project is designed to develop a model to sustain irrigated agriculture, while also meeting increasing urban water demands through the use of rotational crop management and innovative irrigation cropping system techniques. The overall objective of this study is consistent with the SWSI, which recognizes the need to reduce dependence on Denver Basin water because of sustainability issues, but that development of new renewable water supplies should be sensitive to the needs of smaller, rural communities which have limited financial resources.

SUMMARY OF TASKS

The project will include controlled research by CSU on a farm in Logan County that is owned by PWSD. Various crops will be planted by CSU and these plots will be irrigated in different patterns to assess the crop's ability to thrive under varying irrigation practices, e.g., irrigating alfalfa prior to its first cutting, letting it grow without irrigation through the second cutting, and then irrigating it again prior to the third cutting. In this way, CSU will develop a data base on the most efficient irrigation practices for various crops where the crop can still thrive under a lower irrigation volume. The difference between the reduced irrigation volume and the historic irrigation volume related to consumptive use could then be made available for transfer to PWSD for municipal use.

While the controlled research will develop an extensive data base on efficient irrigation practices, it also has to be shown that these applications can be implemented by farmers in the real world on a farm-scale basis. Therefore, there will also be 3 on-farm demonstrations at PWSD's other farms in Logan County, which will have the farmers continue to work their farms with guidance from CSU. In this way, CSU will receive valuable input and feedback from the farmers about techniques that can work on a farm-scale basis.

Other components of the CSU research will include extensive agricultural economic studies to assess the potential trickle-down effect from changes in the farm economy, e.g., effects to implement dealers, seed and fertilizer dealers, local businesses, etc. There will also be surveys completed by CSU relative to the acceptability of these concepts as the study progresses.

More specifically, the following is the detailed scope of work, as presented by CSU and accepted by PWSD.

*“The transfer of agricultural irrigation water rights is needed to meet future municipal and industrial water needs (M&I) in Colorado. Yet, stakeholders are concerned about how water transfers affect farmers and the economies of agriculturally dependent communities. **The principle objective of this project is to develop a model to sustain irrigated agriculture while meeting the increasing urban water needs in Colorado.** Creating a model for transfer of agricultural water to M&I will require significant communication, cooperation, and risk sharing among M&I and agricultural water users, but will ultimately benefit the state of Colorado and its citizens. This project is a cooperative effort between Parker Water and Sanitation District, Colorado State University, and cooperating farmers in the South Platte River Valley to develop practical irrigated cropping systems and management approaches that will facilitate water transfer agreements benefiting both farmers and M&I water users.*

The project is comprised of three distinct phases: an initial discovery phase in which a feasible set of cropping systems, including rotational cropping (i.e., fallowing) are identified and evaluated based on economics, potential water savings, and practicality. The second phase examines and demonstrates these systems in the field while documenting water savings and expected profitability. A third contemporaneous phase examines the likelihood that producers will adopt cropping systems, and then quantifies the regional economic impacts of South Platte farmers adopting the system(s). Representatives from the Parker Water and Sanitation District and CSU will meet frequently to guide the project phases while adapting plans to contingencies as appropriate. A more detailed description of each phase is found below.

Phase 1: Concept Discovery and Feasibility Study

Timeline: July 31 – November 15, 2006

This phase’s objective is to identify and evaluate the “feasible set” of cropping systems, including rotational cropping, that meet M&I demands for water while sustaining agricultural production. Since rotational cropping (fallowing) has already been identified as a potential water savings alternative, it will serve as a benchmark in the feasibility study by which the profitability and performance of other systems are measured. For a cropping system to part of the feasible set, it must have the potential to:

- *Reduce consumptive use by 20% from an historical baseline. This includes the option of total fallowing 20% of the irrigated land.*

- *Consumptive use savings can be scientifically documented for use in court proceedings.*
- *The cropping system is profitable for farmers under expected prices and yields.*
- *The cropping system can be adapted with existing technology, equipment, capital and labor in the South Platte River Basin.*

Cropping system alternatives will likely include water conserving crop rotations (e.g., fallowing or a corn-wheat-sunflower rotation), limited irrigation practices for forage and grain crops (water spreading in space and time), alternative crops and markets, drought tolerant crops and crop varieties, irrigation methods and timing, and conservation tillage practices.

Initially, farmers leasing land from Parker will be the key contacts used to develop concepts and screen ideas for practical utility. Beginning in the summer of 2006, willing farmers will participate in a detailed, face to face survey designed to characterize baseline farm information and to solicit innovative water savings concepts. Innovative ideas obtained from farmers will be combined with concepts from agricultural scientists, extension agents, and agricultural professionals. This project will evaluate all cropping strategies regardless of Colorado statute governing the transfer of "saved" water. In fact, the project may inform the process needed to revise Colorado statute to allow transfer of savings. Thus, the outcomes from this initial survey are a list of potential water saving cropping alternatives and detailed information about the resources and limitations that must be considered in selecting practical cropping options from the list.

Potential cropping alternatives, including fallowing, will then go through a screening and feasibility evaluation. This evaluation will be based on the four criteria listed above, on farm operator input and farm level profits and on economic and water use analysis performed by CSU scientists. Existing economic information, such as South Platte specific crop enterprise budgets will be applied in the screening process. Evaluation will reduce the concept list to a feasible set of practices. This feasible set will be used to prioritize specific cropping practices to be included in on farm demonstrations and the farm level research components of the study (Phase 2). In other words, this phase of the project will assure that cropping systems chosen to be part of the detailed field research will have been carefully selected to meet the criteria listed above and to be practical for implementation by farmers.

Outputs: A technical report outlining the feasible set will be presented to the Parker Water and Sanitation District. The merits and drawbacks of the feasible set will be discussed with particular comparison to rotational cropping (fallowing) benchmark. Knowledge gaps to be filled in Phase 2 will be presented.

Specific elements of this project phase include:

1. *Inventory of all land resources including acreage, soil type, water table, etc. using existing information with new data collection where needed (e.g., soil testing).*

2. *Inventory of water resources including quantity, timing, historical supply and quality.*
3. *Inventory of equipment resources including irrigation equipment, planting, tillage and harvest equipment.*
4. *Inventory of labor and managerial requirements for farm(s).*
5. *Collection of weather, yield, cost, price, farm program payment, insurance indemnity and other relevant data (see note below).*
6. *Interview of current operators to better understand current cropping practices, irrigation management practices, potential innovative limited irrigation best management practices and future alternatives. Interview of regional farm managers and technical experts considered as well.*
7. *Development of a whole farm budget including needed water, labor, capital, and resource requirements. Timing of resource use will also be included.*
8. *Development of enterprise budgets for cropping system alternatives.*
9. *Construction of a rudimentary mathematical programming model to optimize profits subject to resource constraints, especially the consumptive use constraint. Sensitivity analysis will be performed with particular attention to crop-water response functions, crop prices and energy costs.*
10. *Ranking of cropping systems according to the mathematical optimization model mentioned previously. Discussion of cropping system advantages and disadvantages will accompany the ranking.*
11. *Technical report outlining the farm resources, potential cropping systems and those alternatives that comprise the feasible set.*
12. *Assessment of potential research locations, to include assessment of groundwater depth during growing season.*
13. *Final location for the Irrigation Research and Innovation Farm and setup of the linear move sprinkler irrigation system.*

NOTE: Good data on precipitation amount, intensity, and distribution is important to the goals of this project. It is proposed that CSU work with the Caliche School FFA group to run a precipitation monitoring network across the full area of the study. This would provide the needed precipitation data as well as a cooperative educational opportunity for Caliche School and CSU.

Resources Needed: Personnel needed to complete Phase 1 include a ½ time research associate located in Logan County (Heather Amen, daughter of Ken Amen, has been identified as a potential associate) to assist in basic data collection, surveys, and interviews; salary for two agricultural economists at one month each (Drs. James Pritchett and Marshall Frasier) so that they may assist in data collection, development of enterprise budgets, construction of mathematical programming model and compilation of results, soil and water analysis, travel funds and basic supplies.

Phase 2: Developing Viable Cropping Practices With Reduced Consumptive Water Use
Timeline: January 2007-December 2009

While Phase 1 establishes a feasible set of alternatives, actual demonstration, basic research and replication are needed to scientifically document water savings and profitability. Consequently, Phase 2's objective is to document the water savings and

profitability. Two types of field demonstrations will be conducted, on-farm demonstrations and controlled research. On-farm demonstrations will be done on full sized fields with farmers managing the system. These on-farm demonstrations will not be replicated and will be done to evaluate the practicality and feasibility of the cropping systems. The second approach will be controlled research done under a state of the art linear move sprinkler irrigation system. The linear move sprinkler system will allow scientifically defensible, replicated research plots to be established with individualized control of irrigation amounts. Details of the on-farm demonstrations and the controlled field research follow.

On Farm Demonstrations

On farm demonstration of cropping systems will be used to test water saving concepts while recording profit potential. The demonstrations are particularly useful for illustrating how systems might be adopted throughout the South Platte River Basin and to the Basin's farmers a practical, hands-on illustration of these systems.

Farmer led demonstrations will be conducted on 3 to 5 fields selected from farms owned by Parker. Parker farm operators will participate voluntarily, and Parker will underwrite the economic risk associated with demonstrating reduced water use cropping practices. Therefore, an agreement will be made between Parker, the cooperating farmer and CSU regarding the scope and concepts tested for all demonstrations conducted in farmers' fields. Individual producers that participate in phase 1 will be selected as potential demonstration sites. However, the overarching goal will be to represent the wide range of cropping systems, soil types, and marketing approaches that exist in the South Platte River Basin. We expect that practices such as alternative crops and crop rotations, fallowing, limited irrigation, conservation tillage, fertilizer and pest management will be included in the demonstrations performed. As part of the on-farm fallowing demonstration, we will evaluate the productivity of land that is returned to an irrigated crop following a period of non-irrigated fallow. These demonstrations will be conducted on parcels within a center pivot irrigation system rather than on the entire field. Farmers will conduct all crop management practices and CSU researchers will monitor the demonstrations, assist in water use measurements, yield measurement, and production cost determination to obtain detailed economic and water use data. A project manager will oversee the data collection and coordinate the projects with the participating farmers.

Controlled Research and Innovation Farm with Linear Sprinkler Irrigation System

A state of the art irrigation research site will be created to intensively test and evaluate new and innovative water conservation practices, including rotational cropping (fallowing). The research farm will be designed for scientifically defensible evaluations of cropping systems identified as viable alternatives in Phase 1 and a more detailed quantification of water use, crop productivity, and economic evaluations than is feasible in the on farm demonstrations. Installation of a linear move sprinkler irrigation system is critical to development of a facility where irrigation can be controlled, quantified, and

uniformly applied in a research setting with multiple irrigation levels. The linear move has particular advantages relative to other irrigation methods including:

- Side-by-side treatments of water application levels under similar soil, climatic and geographic conditions.*
- Intensive comparison of many different irrigation and crop regimes.*
- Precise control and documentation of water savings.*
- Efficient use of land and labor resources in the research area.*

Parker will own the linear move sprinkler. A Research/Extension Advisory team will be organized which will be made up of local farmers, county agents, Parker personnel and the interdisciplinary CSU research and extension team. The Research/Extension Advisory group will provide guidance in all aspects of Phase 1 and Phase 2 of this project.

A full time manager will oversee operations and coordinate field activities and data collection. The project will pay for production inputs such as seed, fertilizer, and herbicides, while farmer cooperators will assist with field operations, market crops, and will be compensated by Parker for their time and use of their equipment. All revenue from crop sales will go to the farmer cooperator as part of the contract arranged between Parker and participating farmers. The specific location for this research farm will be determined as part of project phase 1. Initially, there is interest in locating the site on either the Steib or Hurst farm. Among the research concepts to be evaluated at the research farm are water conserving crop rotations, rotational cropping (fallowing), rotating fallowed land back to irrigated crops, limited irrigation practices for forage and grain crops, alternative crops and markets, drought tolerant crops and crop varieties, irrigation methods and timing, and conservation tillage practices. A systems approach will be used when evaluating the various research concepts tested, therefore all aspects of crop production will be considered during this research phase. Specific elements of Phase 2:

- 1. Three to five on-farm demonstration of cropping approaches that reduce historic consumptive water use by 20%.*
- 2. Evaluation of rotational cropping (fallowing), including evaluation of irrigated crop production following fallow periods of different durations (1, 2, 3 yrs fallow) and different fallow period management*
- 3. Creation of a state of the art irrigation research and innovation farm with a linear move sprinkler irrigation system where the various cropping systems research concepts identified above will be tested.*
- 4. Detailed economic analysis of the water savings practices including input costs, labor, yields, and price, and net returns of the various systems.*
- 5. Detailed measurements of the water balance for innovative cropping systems including precipitation, applied irrigation, soil moisture dynamics, and consumptive water use.*
- 6. Annual public field days to share information with the agricultural community as well as all interested parties in the greater water community.*

Resources Needed: Cropping systems research and demonstration require a significant amount of time to document the outcomes of new cropping systems. Five or more years is a likely time frame for this project phase. However, this proposal and the associated budget is for three years in order to allow an interim project assessment with the expectation that the project will be continued beyond three years. It is anticipated that Parker will purchase and own the linear move sprinkler irrigation system and therefore cost estimates for this are not included in this project budget. CSU will assist in developing specifications and help to oversee installation. The system needs to include the associated collection pond, pumps, controllers, and nozzles. Risk underwriting for participating farmers is expected to be negotiated directly between farmers and Parker and associated costs are not included in this project budget. In addition, arrangements for some office and equipment storage space will be needed but are not budgeted for in this proposal.

Hiring a full time project manager to oversee phase 2 of this study is vital to the success of the project. A highly qualified candidate will be identified and hired by CSU in early 2007. This individual will live and have an office in the project area, but report to the CSU project principle investigators. Salary will be needed for CSU faculty acting as principle investigators on the project (equivalent of 5 months of salary). As an educational component of phase 2, a graduate student will be supported and will have responsibility for conducting an academic study on irrigation water savings for the cropping system being evaluated. Support is requested for the student stipend and in-state graduate tuition. Other salary will be needed for hourly labor during the cropping season to assist with field activities, data collection, and analysis. Equipment needed for the project are anticipated to include a dedicated row-crop tractor, a hooded pesticide sprayer, a precision weigh wagon for grain yield analysis, a leased vehicle for the project manager, and monitoring equipment. Cropping systems inputs such as seed, fertilizer, and herbicides are needed for the irrigation research and innovation farm, and are included in the budget. Other expenses will include travel costs, materials supplies, and costs associated with publications and field day activities.

Outputs: Field scale demonstrations of cropping practices that reduce consumptive water use and a high visibility state of the art irrigation research and innovation farm will be developed. Appropriate signs showing the cooperation between Parker and CSU will be installed at each demonstration site as well at the research and innovation farm. Appropriate press releases will be made as progress is made on the project. Detailed economic analysis of each practice will be performed. We will produce an annual technical report documenting the results of the on-farm demonstrations and the cropping systems research projects including water balance data and economic outcomes. In addition, farmer oriented CSU Extension fact sheets on the individual practices demonstrated will be developed. Additional CSU Extension fact sheets will be produced for interested non-farm audiences such as regulatory agencies, elected officials, M&I water users, and water suppliers. All of this information will also be made available on the internet. An annual field day will be held where the latest research results will be presented and a field tour of the on-farm demonstration sites will occur. Extension

meetings will be held in the winter to inform the cooperating farmers, other stakeholders and interested parties of the details of the results and project implications on the farm and regional level economic viability as a result of water transfer by Parker. Information generated by CSU personnel is generally considered to be openly available to the public. However, to assure coordination, CSU and Parker will inform each other of the content of information to be released to the public in advance of release.

Phase 3: Regional Adoption and Economic Impacts

Timeline: January 2007 – December 2008

Phase 1 of the project involves an economic feasibility of cropping systems for Parker's representative farms. However, adoption of innovative cropping systems may extend throughout the South Platte Basin in order to satisfy the water needs of growing municipalities. But, how many farms are likely to adopt these innovative systems, and what are the critical barriers to adoption? In order to answer these questions, a farmer survey is needed to capture variation in the likelihood of system adoption associated with farm-specific characteristics such as soil type or water rights, or by demographic issues such as irrigator age and off-farm employment. The specifics of the adoption study are listed in **Part A** below. Additionally, a strong potential for spillover effects into the regional economy exists because adopting alternative irrigation systems will have effects on farm cash flow and productivity. Altered cash flows create ripple effects that include, but are not limited to, agribusinesses that sell inputs directly to adopting farms, businesses that receive revenues from adopting farms' and agribusiness employees that spend wages their wages locally and a changing sales/property tax base. A regional economic impact model will quantify these effects as discussed in **Part B**.

Part A: Determine Adoption of Innovative Cropping Systems in the South Platte Basin

Timeline: January 2007 – January 2008.

Information is needed to capture variations in the likelihood of system adoption associated with farm-specific characteristics. To forecast the likely adoption rate, irrigators in Morgan, Logan, Sedgwick, Phillips, Yuma, and Washington counties (the region surrounding the Parker Water and Sewer-owned properties) will be surveyed about their irrigation technology preferences. Much of the focus of the survey will be on how irrigators expect adopting less water-intensive irrigation systems to influence farm cash flow and labor needs. Additional questions will focus on why irrigators are or are not choosing specific technologies, their time horizon for making changes in irrigation systems, and what levels of cost-sharing, if any, are needed to promote adoption of less water-intensive irrigation systems. As such, this survey will provide a much more precise understanding of why, when and how irrigators in the region adopt different irrigation systems. It will also reveal what producers might need to be paid in order to participate in a rotational fallowing program

This survey will also leverage pre-existing surveys of irrigation technology adoption used during the 2002 drought and the Arkansas River Valley. Once the survey data is gathered, it will be used to provide more realistic estimate of the anticipated benefits and costs of innovative cropping systems. It will also provide more specific understanding of what irrigators' value in an irrigation system.

The lessons learned from the survey effort will inform stakeholders as to the barriers to adoption that may exist in other reaches of the South Platte Basin and the Arkansas River Basin. In particular, the economics of irrigated agriculture are consistent in the South Platte basin so that strategies to overcome adoption barriers in Morgan County will be quite similar in Weld County. Some differences exist between irrigated agriculture in the South Platte Basin and the Arkansas River Basin, but the survey results will also provide key insights into whether Arkansas Valley farmers will be able to adopt limited irrigation practices.

Part B. Regional Economic Impacts of Adopting Innovative Cropping Systems
Timeline: January 2008 – December 2008.

A strong potential for spillover effects into the regional economy exists because adopting alternative irrigation systems will have effects on farm cash flow and productivity. The effects on regional employment and income stemming from changes in on-farm income and cash flows will be estimated using a regional planning model (such as IMPLAN) and drawing on the expected changes in farm profitability and production practices indicated by the results from Phases 1 and the adoption survey. This will provide an estimate of the off-farm benefits of improvements in on-farm productivity and ensure that the estimation of benefits from this project is assessed at a social and not simply a private scale. It will also provide estimates of what levels of support might be available from the regional economy to support changes in on-farm irrigation efficiency if the expected benefits to the regional economy of such changes are positive.

The regional economic analysis in the South Platte Basin will provide a significant foundation for similar modeling in the Arkansas River Basin. Key relationships regarding the purchase of local inputs, use of local labor and their impact on the economy can be used to build an IMPLAN model for the Arkansas basin. However, estimated regional impacts for the fallowing of a similar area of land (e.g., 25,000 acres) will likely have significantly different impacts between the South Platte and Arkansas River Basin economies, due to differences in the diversity of the economic base, the amount of goods and services exported out of the regional economy, and differences in crop rotations and other agronomic factors.

Phase 3 Resources Need: Resources Needed: Survey expenses (~\$8,000) are anticipated along with a dedicated effort from a gradate research assistant to implement and analyzed the survey data (stipend and tuition. Faculty effort will be needed as well to coordinate, direct and present results.

Phase 3 Outputs: Survey and regional economic impact results will be presented to a meeting of interested stakeholders, especially Parker Water and Sanitation members and the Colorado Water Conservation Board. Published materials will include a technical bulletin from Colorado State University Agricultural Experiment Station and fact sheets via Cooperative Extension."

BUDGET

The WSRA grant will fund portions of Phase 2 and 3 Tasks for costs incurred from the date of the Notice to Proceed through December 2008. Table 1 shows the breakout of costs that will be incurred during 2008 for this project by task. PWSD will bill costs associated with this project according to these tasks. The deliverables from this scope of work are the results of the research at the completion of the 2008 irrigation season and the results of economic analyses.

**TABLE 1
BREAKOUT OF COSTS OF CSU FARM STUDY
FROM THE WATER SUPPLY RESERVE ACCOUNT**

<u>PHASE ¹⁾</u>	<u>TASK</u>	<u>ESTIMATED BUDGET (\$)</u>	<u>GRANT MONEY FROM CWCB WSRA</u>
2	On-farm demonstrations	\$39,803	\$39,000
	Controlled research	\$61,000	\$61,000
	Research data analyses	\$40,000	\$20,000
3	Regional adoption survey data analyses	\$25,000	\$10,000
	Economic impact analyses	\$30,000	\$20,000
2&3	Facilities and Administration (Indirect Costs)	\$48,951	\$0
TOTAL:		\$244,754	\$150,000

All indirect costs, such as facilities and administration, will be paid by PWSD, as shown in Table 1. The details of direct labor costs and direct expenses are detailed below.

Budget Details

Description	Year				
	2006	2007	2008	2009	Total
Personnel*					
Faculty/Staff	18,647	47,206	49,136	51,312	166,301
Proj. Manager		51,088	53,175	55,532	159,795
Grad. Students		33,519	34,826	36,395	104,740
R.A. and Hourly	6,786	21,210	22,195	23,183	73,374
TOTAL	25,433	153,023	159,332	166,422	504,210
Other Direct Costs					
Equipment		69,680			69,680
Materials	1,900	29,224	15,684	16,311	63,119
Travel	1,500	7,488	7,788	8,099	24,875
Grad. Tuition		7,749	8,136	8,543	24,428
Other		6,240	6,490	6,749	19,479
TOTAL	3,400	120,381	38,098	39,702	201,581
Total Direct Costs	\$28,833	\$273,404	\$197,430	\$206,124	\$705,791
Modified Total Direct Costs (TDC minus Equipment and Tuition)	\$28,833	\$195,975	\$189,294	\$197,581	\$611,683
Indirect Costs (F&A) (25% of MTDC)	\$7,208	\$48,994	\$47,324	\$49,395	\$152,921
TOTAL (Total Direct Costs plus Indirect Costs)	\$36,041	\$322,398	\$244,754	\$255,519	\$858,712

*Sub-totals for Faculty/Staff, Proj. Manager, Grad. Students, R.A. and Hourly include the appropriate allocation of "associated benefits" described in the budget narrative.

Narrative Description of Requested Budget

1. Personnel (\$504,210)

2006 (\$25,433) – Includes two months faculty salary (\$15,500) and salary for a part time research associate (\$6,000) and associated fringe benefits (\$3,933).

2007 (\$153,023) – Includes five months faculty salary (\$39,208), a full time project manager (\$42,432), stipends for two graduate students (\$32,448), a part time research associate (\$6,240) and hourly labor (\$12,480) with associate fringe benefits (\$20,215).

2008 (\$159,332) – Includes five months faculty salary (\$40,777), a full time project manager (\$44,129), stipends for two graduate students (\$33,746), a

- part time research associate (\$6,490) and hourly labor (\$12,979) with associate fringe benefits (\$21,211).
- 2009 (\$166,422) – Includes five months faculty salary (\$42,407), a full time project manager (\$45,894), stipends for two graduate students (\$35,096), a part time research associate (\$6,749) and hourly labor (\$13,498) with associate fringe benefits (\$20,215).
2. Equipment (\$69,680)
- 2007 (\$69,680) – Includes a row crop tractor (\$26,000), a hooded sprayer (\$15,600), a precision yield weigh wagon (\$7,280), and dataloggers and sensors for automated weather and water data acquisition (\$20,800).
3. Materials (\$63,119)
- 2006 (\$1,900) – Supplies for soil and water analysis.
- 2007 (\$29,224) – Cropping inputs such as seed, fertilizer, and herbicides for research farm (\$10,400), soil and water analysis (\$3,640), publication materials (\$1,040), a computer, printer, and other hardware for data entry and analysis (\$5,824), and survey materials for project phase 3 (\$8,320).
- 2008 (\$15,684) – Cropping inputs such as seed, fertilizer, and herbicides for research farm (\$10,816), soil and water analysis (\$3,786), publication materials (\$1,082).
- 2009 (\$16,311) – Cropping inputs such as seed, fertilizer, and herbicides for research farm (\$11,294), soil and water analysis (\$3,937), publication materials (\$1,125).
4. Travel (\$24,875)
- 2006 (\$1,500) – Part time research associate will travel 100 miles per week in for 14 weeks (\$500), six overnight research faculty trips from Fort Collins to Sterling (mileage \$250, lodging \$450, per diem \$300) (mileage cost [ca. \$0.35/mi] is in addition to the monthly charge for vehicles available from Colorado State University Transportation Services described elsewhere).
- 2007 (\$7,488) – Part time research associate will travel 100 miles per week for 14 weeks (\$520), six overnight research faculty trips from Fort Collins to Sterling (mileage \$260, lodging \$470, per diem \$310), and full time project manager will travel an average of 285 miles per week during the year (\$5,928) (mileage cost [ca. \$0.35/mi] is in addition to the monthly charge for vehicles available from Colorado State University Transportation Services described elsewhere).
- 2008 (\$7,788) – Part time research associate will travel 100 miles per week for 14 weeks (\$541), six overnight research faculty trips from Fort Collins to Sterling (mileage \$266, lodging \$500, per diem \$316), and full time project manager will travel an average of 285 miles per week during the year (\$6,165) (mileage cost [ca. \$0.35/mi] is in addition to

the monthly charge for vehicles available from Colorado State University Transportation Services described elsewhere).

2009 (\$8,099) – Part time research associate will travel 100 miles per week for 14 weeks (\$562), six overnight research faculty trips from Fort Collins to Sterling (mileage \$272, lodging \$530, per diem \$323), and full time project manager will travel an average of 285 miles per week during the year (\$6,412) (mileage cost [ca. \$0.35/mi] is in addition to the monthly charge for vehicles available from Colorado State University Transportation Services described elsewhere).

5. Graduate tuition (\$24,428)

2007 (\$7,749) – In-state graduate tuition for two semester each for two graduate research assistants.

2008 (\$8,136) – In-state graduate tuition for two semester each for two graduate research assistants.

2009 (\$8,543) – In-state graduate tuition for two semester each for two graduate research assistants.

6. Other direct costs (\$19,479)

2007 (\$6,240) – Monthly charges through Colorado State University Transportation Services for a truck for the project manager to use for project activities.

2008 (\$6,490) – Monthly charges through Colorado State University Transportation Services for a truck for the project manager to use for project activities.

2009 (\$6,749) – Monthly charges through Colorado State University Transportation Services for a truck for the project manager to use for project activities.

7. Indirect Costs (\$152,921)

2006 (\$7,208) – Calculated as 25% of Modified Total Direct Costs (Total Direct Costs minus equipment and tuition).

2007 (\$48,994) – Calculated as 25% of Modified Total Direct Costs (Total Direct Costs minus equipment and tuition).

2008 (\$47,324) – Calculated as 25% of Modified Total Direct Costs (Total Direct Costs minus equipment and tuition).

2009 (\$49,395) – Calculated as 25% of Modified Total Direct Costs (Total Direct Costs minus equipment and tuition).

**Estimated Investments by Parker Water to the Project
(Required for Successful Completion of the Project, but
Not Included in the CSU Portion of the Budget)**

Description	Year				
	2006	2007	2008	2009	Total
Other Direct Costs					
Equipment		125,000			125,000
Subcontracts		24,000	26,000	27,100	77,100
TOTAL		149,000	26,000	27,100	202,100
Indirect Costs					
TOTAL		\$149,000	\$26,000	\$27,100	\$202,100

**Narrative Description of Investments by Parker Water to the Project
(Required for Successful Completion of the Project, but
Not Included in the CSU Portion of the Budget)**

1. Equipment (\$125,000)

2007 (\$125,000) – Estimated cost for purchase and installation of a state of the art research ready linear move irrigation system with associated pumps, controllers, nozzles, etc.

2. Subcontracts (126,100)

2007 (\$24,000) – Estimated compensation to farmers participating in on-farm demonstrations and in activities at the research and innovation farm for contract field work (\$16,000) and contracts for office and equipment storage space (\$8,000).

2008 (\$26,000) – Estimated compensation to farmers participating in on-farm demonstrations and in activities at the research and innovation farm for contract field work (\$17,000) and contracts for office and equipment storage space (\$9,000).

2009 (\$27,100) – Estimated compensation to farmers participating in on-farm demonstrations and in activities at the research and innovation farm for contract field work (\$18,000) and contracts for office and equipment storage space (\$9,100).

SCHEDULE

This research project is currently scheduled through 2009. However, WSRA grant funding will fund portions of Phase 2 and 3 Tasks for costs incurred from the date of the Notice to Proceed through December 2008. A schedule for those tasks funded wholly or partially through the WSRA grant is shown below.

Phase and Task	Timeline
Phase 2: Developing Viable Cropping Practices with Reduced Consumptive Water Use	NTP - December 2008
On Farm Demonstrations	NTP - October 2008
Controlled Research and Innovation Farm with Linear Sprinkler Irrigation System	NTP - October 2008
Research Data Analyses	NTP - December 2008
Phase 3: Regional Adoption and Economic Impacts	NTP - December 2008

NTP - Notice to Proceed

The deliverables associated with Phase 2 and 3 will be available upon completion of the irrigation season and the data collected can be analyzed.

PAYMENT

Payment will be made based on actual expenditures and invoicing by the water activity sponsor. 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 CWCB in hard copy and electronic format as part of the project documentation.