



RECEIVED

MAR 31 2008

Water Resources Program
Department of Ecology

March 28, 2008

Dear Al,

I have enclosed the grant application for the Columbia Water Basin Water Management Grant Funding Program. At this point we have an endorsement letter from the City of Spokane, with several others in the works, but not enclosed.

I focused our proposal on the beaver re-introduction plan since that seemed to be the main interest of Ecology and the Spokane Conservation District. Our idea to look at urban water conservation, which I believe you said could be a separate grant proposal is still viable and The Lands Council is working in a regional water dialogue that includes urban watering conservation steps with municipalities in the Spokane area.

I recognize that some of the application was not related to our type of project since we are not actually building anything or securing water rights. Please let me know if you need more information and we look forward to working with you.

Sincerely,

Mike Petersen

Executive Director



COLUMBIA RIVER WATER MANAGEMENT PROGRAM GRANT APPLICATION

OFFICE USE ONLY: CR 01 07 01
<input type="checkbox"/> Draft/Worksheet <input type="checkbox"/> Submission/ Final Date Rcvd: ___/___/___

Project Name: Beaver Population Enhancement and Water Storage

County: Spokane, Steven, Grant, Okanogan, Ferry Pend Oreille, Douglas, Whitman and possibly other eastern Washington counties.

IF MORE SPACE IS NEEDED, ATTACH ADDITIONAL SHEETS

1. APPLICANT INFORMATION		
APPLICANT/BUSINESS NAME The Lands Council	PHONE NO. (509) 838-4912	FAX NO. (509) 838-5155
ADDRESS 25 W. Main Ave., Suite 222		
CITY Spokane	STATE WA	ZIP CODE 99201

2. NEW (PROPOSED) WATER USE AND PROJECT BUDGET
PROJECT NAME Beaver Population Enhancement and Water Storage
PROJECT LOCATION Upper Columbia Basin in Washington
STREAM REACH MILE/ LOCATION
PROJECT DESCRIPTION (TYPE) <p>Climate change and increased demands on water in the Columbia Basin are an urgent issue. Potential changes in our water storage arrangements with Canada are an unknown that could further stress existing water supplies, while conversion of cropland to energy crop production can also increase demand on existing supplies. All methods of retaining and increasing water in the Columbia basin should be explored. While preliminary studies have focused on large water storage projects, a look at natural water storage could provide a valuable insight into the potential and practicality of other storage methods.</p> <p>Our project is an examination of the potential of natural water storage by re-introduction of beaver. We will assess the hydrological and biological potential for beaver placement in the upper Columbia basin (Washington State), including tributaries.</p> <p>We will start in Spokane County, since we have a working relationship with the Spokane County Conservation District, WRIA 54 and WRIA 55/57. Once this mapping is complete we</p>

will assess ownerships and conduct an outreach program to landowners to see if there are willing partners. We will then use the same methodology to examine the beaver re-introduction potential in other counties in the upper Columbia Basin, including Stevens, Pend Oreille, Ferry, Okanogan, Grant, Douglas and Whitman.

Under this project, we estimate that for each beaver released into an appropriate habitat, a minimum of 25 acre-feet of water will be stored each year. Water will not be diverted into this storage project, but will fill and release as the flow regime of the tributary changes during the year. Water will be stored during the peak spring runoff period and will be released during the remainder of the year to help augment downstream flows.

All water stored through this project will go towards addressing water issues in the Spokane River and the Columbia River. Eventually, all water stored and released from this project will reach the Columbia River.

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Our project would provide answers to the following questions:

- 1) What additional storage would be gained by re-introduction of beaver and associated wetlands in suitable areas of the upper and middle Columbia Basin.
- 2) Where are willing landowners located or conservation easements available for possible beaver reintroduction that would provide the highest benefit to the Columbia River

Beavers act as natural ecosystem engineers, profoundly impacting stream hydrology, sediment, vegetation, water storage and late season stream flows.

Wetlands associated with beaver dams are extremely biologically active environments that attenuate high spring flows, absorb those high spring flows in , treat many types of contaminants, and slowly release the stored water over the course of the year. Flow in abandoned streams were found to be at least 10 times less that that in a comparable beaver occupied stream (0.77 to 0.96 . A study in one stream in Colorado indicated that maximum potential water storage in the occupied stream (23.78 acre-feet) was greater than for those unoccupied (9.63 to 16.63 acre-feet), as was actual water storage, 18.12 acre-feet in the occupied stream and less than 1 acre-foot in beaver-abandoned streams.

By some estimates, several million beaver historically existed in Washington State and our study will explore the potential for water storage in beaver constructed wetlands in areas that have been abandoned by beavers. While there will be constraints by agriculture, roads and other critical infrastructure that will reduce the total number of beaver that could be re-introduced, the potential for beaver re-introduction and the associated wetlands and storage they develop is important to the overall water storage in the Columbia Basin.

The outreach to landowners is also a critical component of this project. The Lands Council has done a similar outreach when we brought the FireWise community wildfire safety program to hundreds of residents in northeast Washington. For that program we literally knocked on hundreds of doors, gave written and verbal information, and partnered with state and local fire protection agencies. While this one-on one contact is time consuming, it is by far the most effective way of communicating with landowners and we anticipate similar success with this project. We expect to work with Department of Ecology staff to develop an agreed upon message and outreach materials.

FEASIBILITY STUDY BUDGET

Total budget of \$40,000 as follows:

1. GPS unit(s) for ground-truthing and outreach	\$4,000
2. GIS mapping, data layers acquisition, 1000 hours	\$20,000
3. Grant administration @ 10% of budget	\$4,000
4. Targeted education of landowners for the project	\$10,000
5. Transportation, phone, office supplies	\$2,000

OPERATIONS AND MAINTENANCE BUDGET

(INDICATE DURATION OF AGREEMENT PROPOSED)

	MATERIALS	LABOR
ESTIMATED CONSTRUCTION COST		
DESIGN FEES		
PROFESSIONAL FEES		
SOFT COSTS (ALL PERMITS, LOCAL FEES, AND SO ON)		
OTHER CONTINGENCIES		

3. DETAILED PROJECT DESCRIPTIONS

(PROVIDE EXPLANATIONS AS REQUESTED. ESTIMATE PROJECT AMOUNTS (COSTS, WATER QUANTITIES, AND SO ON) AS CLOSELY AS POSSIBLE.

A. PROJECT COSTS AND FUNDING SOURCES

TOTAL PROJECT AMOUNT REQUESTED FROM THIS PROGRAM
(DOLLAR TOTAL AND PERCENT OF PROJECT BUDGET)
\$30,000 - 75% of budget

TOTAL EXPECTED COST (PROGRAM GRANT) PER ACRE FOOT OF WATER GAINED FOR THE PROGRAM FROM THIS PROJECT. It has been estimated that to completely restore wetlands damaged by agriculture conversion or other management activities, prices can easily range from \$10 to \$50 million to restore a wetland of around 250 acres depending on the complexity of the restoration. However, through the use of natural ecosystem engineers, this price tag is dramatically reduced. In addition, reseach indicates that naturally created wetlands have more diversity of native species, are easier to maintain, and cost less.

Our feasibility study is the first step in what could be a major beaver re-introduction effort, and so it is difficult to assess how many acre-feet of water could be stored. Based on historical numbers of beaver in the state of over a million, and assuming 10% or 100,000 could be re-located to the upper Columbia basin and an average storage of 25 acre-feet, a potential of 2.5 million acre-feet of natural storage could be realized. The dispersed nature of this natural storage is not the same as on large reservoir, but the benefits to local groundwater and agricultural lands could be substantial. In addition, our project seeks to contact landowners and gauge the interest in site specific beaver introduction. This assessment of physical and social potential for beaver created water storage is therefore a few cents per acre foot.

B. FUNDING SOURCE INFORMATION

TOTAL PROJECT AMOUNT EXPECTED TO BE PROVIDED BY SOURCES OTHER THAN THIS PROGRAM (DOLLAR TOTAL AND PERCENT OF PROJECT BUDGET)
\$10,000 - 25%

IDENTIFY SOURCES AND TYPE OF FUNDING OTHER THAN THROUGH THIS PROGRAM GRANT. INCLUDE EXPECTED DATES OF PARTICIPATION. INCLUDE AS AN ATTACHMENT; LETTERS OF COMMITMENT, OFFER LETTERS, APPLICATION APPROVALS, AND SO ON.

SOURCE AND TYPE OF FUNDING: The Lands Council membership donations

AMOUNT: \$10,000

STATUS: Anticipated

DATES OF PARTICIPATION: Through the project

SOURCE AND TYPE OF FUNDING: _____

AMOUNT: _____

STATUS: _____

DATES OF PARTICIPATION: _____

SOURCE AND TYPE OF FUNDING: _____

AMOUNT: _____

STATUS: _____

DATES OF PARTICIPATION: _____

SOURCE AND TYPE OF FUNDING: _____

AMOUNT: _____

STATUS: _____

DATES OF PARTICIPATION: _____

SOURCE AND TYPE OF FUNDING: _____

AMOUNT: _____

STATUS: _____

DATES OF PARTICIPATION: _____

SOURCE AND TYPE OF FUNDING: _____

AMOUNT: _____

STATUS: _____

DATES OF PARTICIPATION: _____

C. ESTIMATED TOTAL WATER SAVINGS

CONSERVATION PROJECT: ESTIMATE THE WATER TO BE CONSERVED THROUGH THIS PROJECT. PROVIDE ENGINEERING OR TECHNICAL ANALYSIS TO SUPPORT THIS ESTIMATE

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT
Qa (ACRE-FEET)													
Qi (CFS)													

HOW MUCH WATER IS THE APPLICANT PREPARED TO PLACE IN TRUST? _____ AF
 (NOTE: THE MINIMUM TRUST QUANTITY IS PROPORTIONATE TO FUNDING UNDER THIS PROGRAM.)

HOW MUCH OF THE TRUST WATER QUANTITY ACCRUES IN A TRIBUTARY? (AMOUNT) _____

TRIBUTARY NAME _____

HOW MUCH OF THE TRUST WATER QUANTITY ACCRUES TO THE COLUMBIA RIVER? (AMOUNT) _____

STORAGE PROJECT: ESTIMATE THE WATER TO BE STORED UNDER THIS PROJECT. PROVIDE ENGINEERING OR TECHNICAL ANALYSIS TO SUPPORT THIS ESTIMATE. ESTIMATED ACRE-FEET= Feasibility of 100,000 or more will be studied AF

ESTIMATE THE TOTAL QUANTITIES AND TIMING WATER WILL BE DIVERTED INTO STORAGE BELOW.

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT
Qa (ACRE-FEET)													
Qi (CFS)													

HOW MUCH STORED WATER IS THE APPLICANT PREPARED TO ASSIGN FOR STATE USE FOR THE COLUMBIA RIVER PROGRAM?
 _____ AF

NOTE: THE MINIMUM QUANTITY ASSIGNED IS PROPORTIONATE TO FUNDING UNDER THIS PROGRAM.

HOW MUCH OF THE STORED WATER QUANTITY WILL BE RELEASED IN A TRIBUTARY? _____ AF

TRIBUTARY NAME _____

HOW MUCH OF THE STORED WATER QUANTITY WILL BE RELEASED TO THE COLUMBIA RIVER? _____ AF

FOR THE PORTION OF STORED WATER ASSIGNED TO THE STATE, DESCRIBE ANY CONSTRAINTS (HYDRAULIC, DEMAND, ETC.) ON THE RELEASE OF THE WATER FOR STATE USE.

D. TO WHAT EXTENT IS THE PROJECT CONSISTENT WITH, SUPPORTIVE TO, OR CITED IN LOCAL NATURAL RESOURCE PLANS?

CITATION PROVIDED ✓	PLAN TYPE	PLAN TITLE	PAGE NUMBER OR OTHER CITATION
<input checked="" type="checkbox"/>	WATERSHED PLAN	WRIA 55/57 Implementation Plan	P 89-91
<input checked="" type="checkbox"/>	CONSERVATION DISTRICT	Supported by Spokane County Conservation Dist	
<input type="checkbox"/>	LEAD ENTITY STRATEGY		
<input type="checkbox"/>	NPCC SUBBASIN PLAN		
<input type="checkbox"/>	SALMON RECOVERY PLAN		
<input checked="" type="checkbox"/>	OTHER RECOVERY PLAN	WDFW Goals and Objectives for Habitat Restoration and Enhancement in the Spokane R.	P 44-48, 53-55
<input type="checkbox"/>	COMPREHENSIVE WATER SYSTEM PLAN		
<input type="checkbox"/>	GMA COMPREHENSIVE PLAN		
<input checked="" type="checkbox"/>	OTHER PUBLISHED PLAN	Spokane County Critical Area Ordinance	P 30-48, 50-67
<input checked="" type="checkbox"/>	OTHER PUBLISHED PLAN	Spokane Shoreline Master Program Restoration plan "Restore Wetlands where feasible"	In development

E. ATTACH LETTERS OF SUPPORT FROM LOCAL COMMUNITY ENTITIES INVOLVED IN NATURAL RESOURCES. Provide entity type and title, and attach letters to application.

LETTER PROVIDED ✓	PLANNING ENTITY TYPE	PLANNING ENTITY TITLE
<input type="checkbox"/>	TRIBE	
<input type="checkbox"/>	COUNTY	
<input type="checkbox"/>	WATERSHED PLANNING UNIT	
<input type="checkbox"/>	CONSERVATION DISTRICT	
<input type="checkbox"/>	IRRIGATION DISTRICT	
<input type="checkbox"/>	SALMON RECOVERY LEAD ENTITY	
<input type="checkbox"/>	OTHER PLANNING ENTITY	

F. RESOURCES CURRENTLY COMMITTED TO ENSURE LONG-TERM PERFORMANCE OF THE PROPOSED PROJECT (OPERATION AND MAINTENANCE).

WHO IS RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PROJECT? Brian Walker will manage the project, do the GIS analysis and organize the outreach to landowners

HAVE OPERATION AND MAINTENANCE COSTS BEEN IDENTIFIED? YES NO IF YES, PROVIDE REFERENCE _____

HOW WILL ONGOING OPERATION AND MAINTENANCE COSTS BE FUNDED? _____

ARE MEASUREMENT DEVICES OTHER THAN DIVERSION SOURCE METERS NECESSARY TO MONITOR COMPLIANCE WITH THE PROJECT INTENT OR PLAN? IF YES, DESCRIBE IN THE BOX BELOW. YES NO

DOES A WATER MEASUREMENT DEVICE EXIST ON THE SOURCE AND DOWNSTREAM OF THE PROPOSED PROJECT? YES NO

IF NO, WILL A WATER MEASUREMENT DEVICE BE INSTALLED AS PART OF THIS PROJECT? YES NO

IF YES, DESCRIBE LOCATION AND OPERATING ENTITY _____

IF YES, PROVIDE RIVER MILE _____

WHAT IS THE NEAREST STREAM GAGE DOWNSTREAM OF THE PROPOSED PROJECT? SOURCE NAME _____

—

RIVER MILE : _____

—

G. PROPONENT'S READINESS TO PROCEED:

DESCRIBE STATUS OF FEASIBILITY REPORTS, ENGINEERING DESIGN, AND PERMITS. PROVIDE DOCUMENTATION FOR THESE DELIVERABLES AND DESCRIBE THE PROJECT EFFORT TIMELINE AS APPROPRIATE. (SUBMIT TWO (2) COPIES OF ALL REQUIRED DOCUMENTS)

We are ready to proceed with a feasibility study and have the capacity to complete the project.

Brian Walker, the project manager, has considerable experience working at The Lands Council and Turnbull Wildlife Refuge working on wetland restoration, education and working with volunteers. He is also trained in GIS data acquisition and mapping, most recently producing lead hazard maps of neighborhoods in Spokane for a lead screening program.

We anticipate starting the project in June 2009 and completing the project by the summer of 2010.

DOES PROJECT PROPONENT OWN THE LAND FOR THE PROPOSED PROJECT? IF NOT, DOES THE PROPONENT HAVE DOCUMENTED ACCESS TO THE RIGHT OF WAY OR OWNS AN EASEMENT TO THE PROPERTY PROPOSED (PLEASE ATTACH APPROPRIATE DOCUMENTATION INCLUDING TITLE REPORTS AS APPLICABLE)

N/A

DESIGN/ ENGINEERING STATUS:

- | | | | |
|-----------------------------------|--------------------------|---------|-------|
| PRE-PLANNING (Pre – permitting) | <input type="checkbox"/> | Status: | _____ |
| PRE-DESIGN (DESIGN REPORTS) (10%) | <input type="checkbox"/> | Status: | _____ |
| SCHEMATIC DESIGN (30%) | <input type="checkbox"/> | Status: | _____ |
| DESIGN DEVELOPMENT (75%) | <input type="checkbox"/> | Status: | _____ |
| CONSTRUCTION DOCUMENTS (95%) | <input type="checkbox"/> | Status: | _____ |
| BID DOCUMENTS (Ready for bid) | <input type="checkbox"/> | Status: | _____ |

PERMIT STATUS

- | | | | |
|--------------------------------------|--------------------------|---------|-------|
| SEPA | <input type="checkbox"/> | Status: | _____ |
| 401 | <input type="checkbox"/> | Status: | _____ |
| FISH AND WILDLIFE CONSULTATION | <input type="checkbox"/> | Status: | _____ |
| STORAGE AND /OR SECONDARY USE PERMIT | <input type="checkbox"/> | Status: | _____ |
| OTHER (_____) | <input type="checkbox"/> | Status: | _____ |
| OTHER (_____) | <input type="checkbox"/> | Status: | _____ |
| OTHER (_____) | <input type="checkbox"/> | Status: | _____ |

4. SIGNATURES

I certify that the information above is true and accurate to the best of my knowledge. I understand that in order to process my application, I am hereby granting staff from the Department of Ecology access to the above site(s) for inspection and monitoring purposes. If assisted in the preparation of the above application, I understand that all responsibility for the accuracy of the information rests with me. I also understand that I may rescind this application at any time prior to signing the Agreement with no other obligations or requirements.

Mike Peter
(Applicant/ Grant Recipient)

03/28/08
(Date)

(Water Right Holder)

_____/_____/_____
(Date)

(Land Owner(s) of Existing Place of Use)

_____/_____/_____
(Date)

For More Information

- Contact:** Alvin Josephy
- Voice:** (360) 407-6456
- Email:** ajos461@ecy.wa.gov
- Web:** <http://www.ecy.wa.gov/programs/wr/cwp/crwmp.html>

If you need this document in an alternate format, please call the Water Resources Program at 360-407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.



City of Spokane

March 27, 2008

Mike Petersen
Executive Director
The Lands Council
25 West Main Avenue Suite 222
Spokane, WA 99201

Dear Mike:

It is with great pleasure that I write to today to express my strong support for the grant application of The Lands Council to study the reintroduction of beavers to positively benefit water storage options in our region.

The Lands Council is a non-profit environmental organization that works across our region with local government jurisdictions, private businesses and business organizations, other non-profits and individuals to better manage our water resources, among other issues. Currently, the Council is working with the mayors of the cities of Spokane and Post Falls to host three regional water management dialogues for local elected officials in both Eastern Washington and Northern Idaho, and we appreciate the Council's willingness to serve with us to improve this important resource.

The Washington Department of Ecology has been charged with aggressively pursuing development of water supplies to benefit both in-stream and out-of-stream water uses through storage, conservation and voluntary regional agreements. The Lands Council's proposal to identify suitable habitat to repopulate beavers who historically constructed dams on small streams where water was slowly released down stream, augmenting summer flows. Summer flow is an issue on the Spokane River, hence my strong support for this grant proposal.

Sincerely,

Mary B. Verner
Mayor

"Spokane – Near Nature, Near Perfect"

808 W. Spokane Falls Blvd. • Spokane, Washington 99201-3335
Phone: (509) 625-6250 • Fax (509) 625-6217



City of Spokane

March 27, 2008

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Executive Director
The Lands Council
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