Report to the Sustainability Board
Brownsville Dam Removal Pilot Project
Policy Implications and Recommendations

Background

The Sustainability Board sponsored a pilot project that included in-water restoration with regulatory agencies at the federal, state, and local levels in the interest of streamlining the regulatory processes using the Water-Related Process Improvement Team (WRPPIT) Model. The Sustainability Board selected and co-sponsored, with the Institute of Natural Resources and the Office of Regulatory Streamlining, the Brownsville Dam Removal Project for this pilot. The purpose of the pilot effort was to better assess the recommendations of the WRPPIT model and identify policy implications and recommendations.

Project Background

Brownsville Dam was a structure located in the Calapooia River about three miles west of the city of Brownsville, Linn County. The dam, spanning the 100-foot width of the river and standing five feet high, was originally built as a wooden crib dam in the 1880's for the purpose of supplying water to woolen and timber mills in the area. The dam was rebuilt in 1964 as a concrete structure. Most recently, the dam was used to supply water to Brownsville for aesthetic uses and to several property owners for cattle and irrigation uses. The dam was owned and operated by Brownsville Canal Company (See Appendix A for Project Summary.)

The Brownsville Dam removal project was an effort spearheaded by the Calapooia Watershed Council in acknowledgement of the river being identified as one of 27 "conservation opportunity areas" in the Willamette ecoregion in the *Oregon Comprehensive Wildlife Strategy* completed by the Oregon Department of Fish and Wildlife (ODFW). The strategy specifically notes some of the best riparian forests remaining in the Willamette Valley are found in along the Calapooia River, and that the river supports small but important populations of spring Chinook and winter steelhead (both listed as "threatened" species under the ESA), and Pacific lamprey. The removal of Brownsville Dam supports the state's recovery efforts for listed salmonids by enhancing fish access to miles of spawning habitat upriver from the dam site.

After five years of project development, two of which were spent on the design, funding, and permitting processes, the final removal of the Brownsville Dam was completed in September 2007. Funds for the project came primarily from the Oregon Watershed Enhancement Board (OWEB), with watershed council staff and their engineering consulting firm leading the design and permitting efforts. A multi-agency team was formed including representatives from federal, state and local governments, the Calapooia Watershed Council Project Manage, and consultant staff in order to regularly provided design input and guidance for the required permit processes. The dam removal required a total of twenty-six of permits and reviews, including: Section 404 Permit (US Army Corps of Engineers), Section 401Water Quality Certification (DEQ, Stormwater

Discharge Permit (DEQ), Endangered Species Act consultation (NMFS), and a Removal-Fill Permit (DSL). (See Appendix A for Project Summary and the Regulatory Streamlining website at http://www.oregon.gov/DCBS/RSL/other_projects.shtml Since removal of the, the Calapooia River has responded as anticipated with fish now free to move unimpeded to upstream habitats, and river gravels free to move downstream enhancing fish habitat through the system.

Policy Implications/Recommendations

As a pilot project for the Sustainability Board, the Brownsville Dam removal project has revealed several policy implications and recommendations for the facilitation of future dam removal projects in Oregon.

1. Commitment at all levels of involved state agencies for early and regular involvement: The Brownsville project admirably sought to involve all key regulatory/natural resource agencies early and regularly through design and planning phases of the project. However, it was evident that not all agencies brought the same level of commitment, collaborative spirit, and understanding of the regional importance of the project. For future projects of this type, it is important that participating staff be provided management support within their agency for full and active engagement.

2. Establish a lead coordinating agency: At the state level alone, there may be up to seven agencies that will have a role in the regulatory process for small dam removal projects. Federal regulations can bring three or more additional agencies to the table. Each agency has its own missions, processes, and required outcomes. It is unrealistic to think that a local watershed council or other grass roots organization (often the proponents of such projects) can maintain the in-house expertise to navigate and coordinate the needs of each agency. Projects would benefit from establishing a lead state agency (either programmatically or on case-by-case basis) whose responsibility it would be to help the project proponent identify all key regulatory players, bring those players to the table, coordinate all agencies' project review so that the proponent receives consolidated and coordinated feedback, and, generally serve as their guide through the regulatory process.

3. Better coordinated permits: At least six agencies and three permits may impose project conditions for the protection of water quality and beneficial uses of the water. Such overlap creates the potential for duplicative and conflicting conditions and, most certainly, confusion for the permittee who must interpret and implement the permits' requirements. The involved regulatory agencies should be coordinating prior to their individual permit's issuance to identify and correct duplicative and contradictory permit conditions. Where possible, agencies should consider moving toward a single state permit or coordinated permit "package" with reconciled, non-overlapping conditions.

4. Opportunity for more programmatic approval: It is reasonable to expect that many small dam removal projects will have only short-term negative effects (e.g., erosion, turbidity, fish harassment) that can be reasonably predicted and minimized by appropriate design and using best management practices. Regulatory agencies should examine opportunities to develop programmatic permits that can automatically cover dam removal projects when those projects are designed to pre-established, pre-approved standards and best management practices.

5. Better education/outreach to project proponents: The Calapooia Watershed Council has now gained invaluable knowledge on the steps, processes, and pitfalls for small dam removal. Likewise, the involved agencies' staffs have a new appreciation of the hurdles that project proponents face. State support in the development of effective education materials and presentations will help to address the steep learning curve that other watershed councils/dam removal proponents will face.

The Brownsville Dam removal project represents one of what will surely be a growing number of small dam removal projects to improve fish habitat. It is incumbent upon state and federal natural resource agencies to move beyond the paradigm of agency-by-agency, issue-by-issue regulation to a process that accommodates a more collaborative, supportive working environment for the benefit of those putting habitat restoration projects on the ground.

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Appendix A

Summary – Implementing the Brownsville Dam Removal Project

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Prepared for: Oregon Watershed Enhancement Board, Oregon State Sustainability Board
Prepared on: December, 2007

The Calapooia Watershed Council (Council) was the project sponsor for the Brownsville Dam Removal and Irrigation Diversion Restoration. The Council is a volunteer group without any regulatory authority. The mission of the Council is to cooperate with landowners in implementing projects that improve watershed health. To implement this project, the Council utilized a Technical Team of agency professionals to guide and provide expertise to the project through every phase of the project.

Agencies that participated with the project included:

Local agencies
Brownsville Canal Company (BCC)
City of Brownsville (CoB)
Cascade Pacific RC & D (CPRCD)
Linn County (County)

State agencies
Oregon Department of Fish and Wildlife (ODFW)
Oregon Department of Environmental Quality (ODEQ)
Oregon Department of State Lands (DSL)
Oregon Water Resources Department (WRD)
Oregon Watershed Enhancement Board (OWEB)

Federal agencies
U.S. Army Corps of Engineers (USACE)
NOAA Fisheries (NOAA)

Engineering Firm
Cascade Earth Sciences (CES)

This project spanned 5 years of planning and development. This report will focus only on the implementation phase of the project including: engineering design development, permit application development and implementation. A previous report is available from the Council that documents the pre-implementation work, *"OWEB Grant 204-506 Brownsville Dam Fish Passage Alternatives Study"*.

Hiring Project Engineer

The process to solicit and hire a project engineer was a collaborative effort involving the Technical Team to write and distribute the project RFQ (Request For Qualifications). Agency members participated in a small group exercise at the first Technical Team meeting to review and give input on the Council's draft RFQ. Following that meeting in September, 2006, several Technical Team members provided follow-up comments and additional assistance with language for the RFQ. This assistance was very valuable because the Council had only prepared one other RFQ previously for hiring an engineering firm to work on the Sodom Dam alternatives study.

In October 2006, the Council sponsored an "Open House" for the project where all firms interested in submitting RFQs for the project were invited to Brownsville to receive a tour of the project site and a powerpoint presentation from the Council's project manager that outlined watershed background, dam and canal existing conditions, existing data and known data gaps as well as critical design elements. This Open House was an opportunity for firms to ask questions, understand the Council's needs and get a feel for the project. It was not required that firms attend in order to submit a RFQ – however, all except one firm who submitted had attended the Open House.

The Council received Statements of Qualification from 8 engineering firms. The project manager developed a matrix to rate the SOQs. Five Tech Team members reviewed and ranked the SOQs independently prior to meeting as a group to determine the top three candidates to interview. Consensus on the top three candidates to interview was reached.

Interviews were in November 2006. Seven members of the Technical Team participated. Three candidates were interviewed: AMEC, Inter-fluve and Cascade Earth Sciences (CES). A hiring matrix was developed by the project manager to assist in ranking the interviewed candidates. Following interviews, consensus was reached by the Tech Team to offer the contract to Cascade Earth Sciences (CES).

Several meetings were held in November with CES, the council chair and project manager to develop a scope of work, timeline and deliverables. The Technical Team did not participate in this process. The Council's fiscal agent, Cascade Pacific RC & D assisted in developing the contract. The contract process took much longer than anticipated. Issues that needed to be resolved before signing the engineering services contract included: liability – CES was not assuming liability for any changes to river following the dam's removal and that language had to be reworked in the contract; the Council needed to be listed as an "additional insured" on CES's general liability policy and funding agreements were not in place for all of the sources that would be paying for the engineering design work.

BIG Picture on Hiring Project Engineer

Hiring a project engineer for the dam removal was complicated by the fact that very few dams of this size have been removed in Oregon. Therefore, there are no firms to choose from who have experience with designing a dam removal, familiarity with the permitting process for this type of project (in Linn County) along with the skills to handle the public outreach/updating component. The Council had the staff to provide the engineering firm with considerable assistance with permitting, managing the Technical Team and conducting the public outreach.

Permit Issues Encountered During Brownsville Dam Removal Design and Implementation Phase

Technical Team Participation

The watershed council built a technical team for this project in order to streamline communication between the project engineers and all the involved agencies. The Council was very adamant that the project be implemented in 2007. In order for that to happen, we needed a tight timeline. Every agency that could be potentially interested in the project was invited to participate. The agency representatives determined the minimum number of meetings necessary to provide input on the technical and permitting aspects of the project and committed to participating with the entire process. We had excellent participation except from our most important agencies: USACE, DSL (until the project's near conclusion) and DEQ. While DEQ had a representative present at nearly every meeting –the person available to attend meetings was not the person who would have to issue our 401 permit or our NPDES permit. This was not ideal, but the best the agency could do given the workload of the DEQ personnel who issue permits.

Three pre-implementation Technical Team meetings were held between September 2006 and November 2006. Six Technical Team meetings for project engineering and design were held between December 2006 and June 2007. Three Monitoring Team meetings were held between July 2007 and September 2007.

Compliance with Sediment Evaluation Framework

In December 2006, DEQ's representative to the Technical Team informed the group that our project would need to comply with a new version of the USACE's "Sediment Evaluation Framework" (replacing the Dredged Materials Framework as of September 2006) to evaluate the sediment stored behind the dam and its potential to do any harm when released. DEQ could not provide additional guidance on the necessary steps to take to comply with SEF other than to refer us to the guidance manual (over 300 pages in length) which does not explicitly cover dam removals. The SEF document is written to address dredged materials and contaminated site clean-ups. Determining what was needed to comply with SEF was an arduous process and one mostly undertaken by the Council since it was not included in the engineering firm's scope of work and the Council

had limited funding for engineering services. USACE representative did not provide clear guidance to the Council. It seemed the agency personnel were not sure how we should proceed and we were in the position of having to guess at what we needed to do.

We met with Larry Evans at USACE in January 2007. He explained that our project could not be evaluated by the Regional Sediment Evaluation Team (RSET) unless we submitted a permit application. We submitted the USACE general authorization permit in February 2007 along with our best effort at meeting the SEF guidelines. This included extensive documentation of watershed conditions upstream of the dam and analysis of conditions at the dam. We received a statement from the RSET in April 2007 saying we did not need to do any additional testing to meet SEF.

This whole process was extremely frustrating on many levels. First, we had no idea this SEF compliance document even existed – it is not mentioned on either the USACE or DSL joint fill/removal permit application. It felt as though we were being ambushed by regulations. Second, in our initial conversations with USACE, we were instructed to follow the SEF guidance for meeting Level II compliance (something that would have cost tens of thousands of dollars that we simply did not have available for data collection and testing). We objected and built a case for not needing additional testing – but this was something that we received no support from USACE on. No information on who evaluates the report we submitted, what the process for evaluation is, or timeline for receiving notification from the RSET is provided to applicants. No one from the Technical Team had ever heard of SEF or any experience with submitting this type of project and site documentation.

Compliance with State Historical Preservation Office Regulations

We knew our project location would have to be evaluated by SHPO for potential cultural resources. Since the project was in-channel, we anticipated it would be a straightforward process. We ended up having to hire an archaeologist to do a cultural resources inventory for the access road thru an active filbert orchard to the dam removal site because the watershed has many known locations with cultural artifacts. Also, the canal that conveys water for 2.5 cfs of local water rights is considered an historic resource and impacts to it required assessment.

The need to hire an archaeologist was not anticipated by our engineering firm or the Technical Team. Participants on our Technical Team did not have experience with SHPO.

We ended up with no finding of cultural artifacts on the site and SHPO gave the go-ahead for the project.

Resolving Water Rights Point of Diversion Transfer

As part of the negotiations with the Brownsville Canal Company (BCC) and City of Brownsville (CoB) to remove the dam, the Council agreed to seek funding not only for the dam's removal, but also to pump water into the Brownsville Canal. The pump station will be constructed in Summer 2008. It will be used to meet existing water rights that were previously met by installing flashboards on the top of the Brownsville Dam.

The water rights along the canal include nine separate rights. CoB holds one water right for aesthetics; the remaining eight privately owned water rights are for watering livestock and irrigation. The points of diversion (POD) for these rights are not consistent. Five of the rights have the POD on their certificate as the dam. The other four have the POD out of the canal itself. With the dam removed and the pump station installed (Summer 2008), the new POD is going to be 120 or so feet upstream of the current POD for five of the rights. There are no other water rights between the dam and the new intake location. However, it was going to be necessary to apply for POD transfers for each of the five water rights with their POD at the dam. It gets a lot more complicated than this too because of the varying abilities of the landowners to show "proof of use" within the past 5 years, the City having a water permit but not a water right, etc. There were a lot of details that were going to require a certified water rights examiner's expertise, at a cost of nearly $40,000.

Instead, the Council and CES pursued a creative alternative, a little known statute, ORS 540.510, section 6. This ORS allows for POD transfers if a "government action" causes a permanent change in the water level. No one had ever used this ORS. It was originally written to assist landowners who were going to be affected by the USACE permanently lowering the water level behind John Day Dam (in efforts to improve salmon migration). Hundreds of irrigators were going to impacted by this proposed project. This ORS was passed to allow these landowners to move their intakes to follow the drawdown of the reservoir without having the expense of filing a POD and hiring a water rights examiner. But, John Day Dam was never lowered and this ORS went unused – until now.

The Council and CES prepared a letter to WRD outlining how the 1999 listing of winter steelhead and spring chinook under the federal Endangered Species Act creates the reasonable expectation that the National Marine Fisheries Service (NMFS) would compel the BCC to address fish passage issues at the dam. The best alternative at this site would be dam removal and NMFS could compel the landowners to take that action, thus permanently lowering the water level behind the dam. Instead the water right holders for the Canal set in motion a series of proactive actions to address the reasonable expectation of federal regulatory action.

The Council received notice in September, 2007 that the water right POD transfer was approved.

ESA Section 7 Consultation

Because the Calapooia watershed is home to two species listed as "threatened" under the federal Endangered Species Act, our project required federal consultation. The NOAA Restoration Center (RC) awarded funds to our project under the Open Rivers Initiative. This federal funding constituted a federal nexus under the Endangered Species Act; therefore we did consultation with NOAA. In July of 2004, a NOAA Restoration Center Northwest Programmatic Biological Opinion was issued by the Northwest Region of NOAA Fisheries. This Opinion concluded that the restoration activities most commonly implemented with RC funding are not likely to jeopardize ESA listed salmonids species in the Pacific Northwest.
We were issued a Programmatic Biological Opinion with terms and conditions in June 2007 that also satisfied our need for consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

NOAA worked very diligently to provide us with the necessary paperwork for our project to proceed. They understood the biological benefits of the dam removal and the relatively low-risk nature of a dam removal of this size in a river of this size. NOAA had been participating with the Council at Technical Team meetings on another project in the watershed (Thompson's Mills water right transfer) for five years and well understood the watershed and the fish issues involved at the Brownsville dam site. This was a tremendous benefit to our project.

Joint Fill and Removal Permit Application Process

Obtaining the Joint Fill and Removal Permit (JFRP) was the crux of our project. To obtain this permit, an applicant needs the cooperation of state and federal agencies. In our case, we needed DSL, NOAA, USACE and DEQ assistance to obtain a permit. We had a very short timeline to obtain these permits if the project were to be implemented during the in-water work window for 2007. Design discussions between ODFW, NOAA and our engineering firm regarding the pump station (including: pump type, fish screen and pump station location) took longer to resolve than anticipated and final designs were not completed until June 2007.

Our engineering firm made the decision to submit the JFRP permit application when we had the 100% design (rather than the 30% design as is sometimes done) since we had participation from most agencies along the whole process and we expected permitting to be straightforward. DSL and USACE did not have any concerns with the submitted design for the dam removal or the pump station installation by the time we submitted. However, the project was required to produce sediment modeling as part of the permit application to USACE.

Understanding what would be needed for the modeling was perhaps the most arduous aspect of the project. We received no guidance on what modeling would be adequate to meet USACE's purposes until April 2007. There are no guidelines that outline what modeling approach is appropriate or necessary. The engineering firm had not anticipated

the level of modeling that would be required. We needed additional data collection in order meet the parameters of the more stringent modeling approach USACE deemed necessary. This added considerably to our engineering costs for the project. The decision on what modeling was required for our project seemed capricious, arbitrary and based entirely on the opinion of the person in the office at the time.

When we received word from USACE that our modeling was adequate and the project could go forward, that is all we were told. There did not seem to be a rigorous analysis of the data that were submitted for this phase of the project and it seemed our $40,000 data collection and modeling effort was just a "check the box" exercise USACE required us to go through.

Communication between USACE and DEQ regarding the necessary 401 permit was another difficult piece of obtaining our JFRP. At the time (June-August 2007), DEQ did not seem to have adequate staff to process 401 applications and get them out the door. While our application was being processed, DEQ was hiring additional staff. Our experience with working with DEQ for this project was that they wanted to provide assistance, but lacked the staff time. The person on the Technical Team representing DEQ did not issue permits. If DEQ had been able to spare the permitting person to attend 1 or 2 Technical Team meetings, our 401 certification could likely have been processed much more expeditiously. Because the permit issuance person was not at meetings, her understanding of the project and phases was limited and required additional phone and email communication with our engineering team who sometimes needed to confer with ODFW or NOAA and then get back to her. This circular communication pattern was something our project strived to avoid by having regular Technical Team meetings to share communication in person. We were issued our 401 certification just days before the JFRP had to be issued if we were to go to construction in 2007.

BIG Picture on JFRP application process

USACE issued our JFRP at the last possible minute before our construction needed to commence. We received the JFRP on Thursday, August 23rd and construction kicked off Monday, August 27th. This was the most nerve-wracking week of my life. I would not wish to re-live those stress-filled days ever again. I think that is a key thing for agencies to remember. While reviewing and issuing permits is routine, rote and perhaps even a tad mundane to the agency personnel involved, for the applicants, these projects are of tantamount importance and not receiving timely communication or answers to questions can be a source of immense frustration and stress. Implementing projects for groups like watershed councils is grant funded work with limited wiggle room for budget creep or unexpected data collection or analysis needs and timelines are typically very constrained by grants.

The Council worked very closely with DSL in the final weeks of the project to bring the JFRP application to completion and submission. We received excellent assistance and answers to every question in a timely, friendly and helpful atmosphere. It was

unfortunate that DSL did not have the staff available to participate in the Technical Team process in the months leading up to submission, however we were extremely grateful for their assistance at the most crucial time.

Miscellaneous issues

File Sharing

File sharing was problematic throughout the process. The design files developed by the project engineers typically contained two to eleven drawings and each drawing was two to eight MB. This made emailing files to agency Technical Team members problematic since most state agency computers can only accept files less than two MB. We worked with the engineering firm to set up a file transfer protocol (ftp) site, but it only worked occasionally. Having an easy way to share drawings that allowed people to be on the phone and have the same information in front of them would have greatly enhanced project communication.

Grant agreements

For a project this size, we worked with four agencies and one private foundation to secure funding for engineering and design as well as project implementation. Each agency has its own system for issuing grant agreements, different budget requirements, different reporting requirements and different rules about how/when funding is available to the applicant. This led to some very creative financing by one agency to provide us the funding we needed to keep the project going during the engineering and design phase. It also meant our engineering firm had to bend their own accounting rules about receiving late payments without penalizing the Council with late fees (which could not be paid with any of the grant funds). It would be ideal if state and federal grant programs could move to an on-line system for submitting and tracking grants that was more overlapping in terms of application, budgets and reporting. A significant portion of the Council's project management time went toward managing the grant paperwork.

River Survey

The Council and Technical Team made the decision in September 2006 to hold off on obtaining detailed river survey information until the USACE's modeling needs were more fully known. This ended up being a real problem as we proceeded. There was no clear direction from USACE on what type of modeling would be required to demonstrate fate and transport of sediment. We should have obtained survey data in late summer/early fall 2006, but did not want to spend additional funding on survey ($15,000 and up were the bids we got for the work) if we wouldn't need a 2-D model. Project engineers did not outline an approach to answer the modeling question until April 2007. USACE responded that this would not be adequate and eventually we ended up doing a $15,000 survey to collect enough cross-sections and longitudinal data to run HEC-RAS. The modeling was not completed until late June 2007.