



WASHINGTON STATE  
DEPARTMENT OF  
**E C O L O G Y**

## **Application for a 2015-2017 Floodplains by Design Project Grant**

Submitted applications will be rated to create a ranked list in support of Ecology's FY 2015-2017 Floodplains by Design budget request.

Applications must be submitted electronically via email to Ecology by 5:00 pm, **September 8, 2014**. Send applications to:

**Adam Sant** at [Adam.Sant@ecy.wa.gov](mailto:Adam.Sant@ecy.wa.gov)

**With the Subject line: 2015-2017 Floodplains by Design Project Grant Application**

You will receive confirmation that your application has been received by close of business on September 15.

*Applicants must use this form as provided. No alterations will be accepted.*

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Project Title **Nile Mile 30 levee Removal**

Organization/Jurisdiction Name **Yakima County Public Services**

Contact Name **Terry Keenhan**

Address **128 North 2<sup>nd</sup> Street**

**Fourth Floor Courthouse**

City, State, Zip Code

**Yakima WA 98902**

Phone **509 574 2311**

Email **terry.keenhan@yakima.wa.us**

Legislative District(s) **14th District**

County **Yakima**

WRIA(s) **39 Upper Yakima**

Congressional District(s) **4th**

Specific Project Location

**Section 27**    **Township 16**    **Range 15**                      River Mile **30**

**Latitude 46.842889**    **Longitude-120.94883** PS coordinates, if available

Major Watershed Project is in **Naches River**

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***Full project (or phase proposed herein) should be completed in 3-4 years.***

***Project Narrative and Budget are limited to 20 pages.***

***Scope of Work, Schedule, Maps and Photos can be in addition to those 20 pages.***

**1. Short Description of Project (500 words or less)** The project involves acquisition of approximately 15 acres of land on 4 parcels on an island of the Naches River that has been reinforced by a levee to redirect the river, the removal of the 700 feet of levee and the restoration of the dormant existing side channels and floodplains on the cutoff island to supplement reduced high priority habitat in this reach. (see Figure 1) This project is located in a reach of several homes that have made flood insurance claims, experienced significant avulsions during the last 2 flood events, the project will reduce the risk to and need for existing downstream levees, and return 30 acres of active floodplain to the river. The parcels to be acquired include #15162844001, a portion of #15132733001, #15162733004, and #15163422001. In addition there is a small cottage structure on parcel #15132733001 to be removed and/or demolished. The Naches is one of two mainstem tributaries of the Yakima River, and this reach is the least regulated, and most prone to channel movement that produces flood risk and higher habitat potential. The river supports various Salmon and ESA species including Steelhead and Bull Trout and the project is designed to reverse existing continuing degradation to reestablish natural river processes that can sustain themselves.

**2. Flood hazard / risk reduction (60 points)**

Describe your project and how it will reduce the magnitude or frequency of flood damages to people, structures or infrastructure. Projects will be evaluated on the significance of the flood hazard and the ability of the solution to address the hazard. Evidence of flood hazard reduction can be demonstrated via flood storage added (acre-feet), flood stage reduction [reduced BFE (base flood elevation)], conveyance increased (cubic ft/sec), sediment storage added or inputs reduced, number or value of structures and/or development rights removed from hazard area (# or areal extent), critical facilities removed from high hazard area, transportation and infrastructure facilities removed from high hazard areas, and other project-specific goals. Describe both upstream and downstream effects of your project.

**Answer question 2 here:** The presence of the existing levee along with the Clover Springs Levee located on the right bank downstream constricts the Naches River at this point increasing flood heights and velocities. Several homes across from the levee have claimed flood insurance damages in 1996 and 2011. Closure of State Route 410 and Nile Road located on both sides of the river, which are the only route between Yakima and several hundred homes, have occurred in this reach during larger floods, such as in 1996. The Nile Mile 30 Levee pressures the Naches River to the west and as a result, property owners downstream of the island have added armoring and protection in the form of a levee (Clover Springs Levee) to protect their properties. The removal of this 700 feet of levee will reduce flood risk by allowing the river to reoccupy the purchased parcels (island) activating historic floodplain channels on the minimum of 30 acres as a route for flood flows. Long term costs associated with levee repair and damage to other structures will be removed. Removal of the Nile 30 mile will lower flood heights in the immediate vicinity and upstream while also reducing risk to the downstream properties behind the downstream levee. The frequency of State Route 410 and Nile Road closures during larger floods, such as in 1996 and 2011 would be reduced by the project.

**3. Floodplain ecosystem protection or restoration element (60 points)**

Describe the ecological benefit of the project, its significance, and the ability of the solution to address the overall need in the project area or watershed. Examples include, but are not limited to, reconnecting floodplains, salmon recovery actions, habitat restoration, Channel Migration Zone protections, etc. Evidence of ecosystem benefits include floodplain (including estuary) habitat type (e.g., wetland, side channel, forest) and area restored (# acres), floodplain area protected from bank armoring (# of acres), floodplain area protected from development or other land use change (# acres), hardened bank removal or levee/riprap removal (linear feet), levee setbacks constructed (linear feet, # acres), new side channels or reconnection of old side channels (linear feet or storage volume), salmon species benefitted (# of

listed, non-listed species). Secondary evidence includes culvert replaced to restore fish passage or increase conveyance, logjam and or wood structures installed, riparian area planted, and other project-specific goals.

**Answer question 3 here:** The Naches is one of two mainstem tributaries of the Yakima River, a basin with recovering and increasing returns of Salmon and ESA species. Flows are least regulated on the Naches and this mainstem reach in particular, which is prone to channel movement that increases habitat potential and improves fish habitat. A large fraction of the endangered, and other aquatic, Yakima basin species travel through this reach. The potential for channel movement and migration has led to competing levees in this reach. Following 700 feet of levee removal this project will reduce the channel simplicity created by the existing levee and open a minimum of 30 acres of floodplain on this island up for restoration through floodplain interconnectivity through initial additional side channels that will lead to quality floodplain. The initial pilot channels will be placed in former alignments as evidenced in historic airphotos and LiDAR and are intended to jump start natural previously interrupted geomorphic processes, including sediment redistribution and channel formation processes.

By removing constraints to the floodplain the project is designed (see above) to increase the responsiveness and vibrance of the system to future changes as opposed to control response and fight change. Resistance (in the channel) is futile (and expensive). Based on a hydraulic modeling design that reduces lateral restrictions the project will mobilize long term stored sediment to return the system towards increases floodplain connectivity, increased sediment mobilization and more normal sheet deposits with reasonable turn over periods, all of which increase the cooling hyporeic flows and floodplain food web and vegetation towards balance with sediment loads.

This reach of the Naches provides habitat for all life histories of listed Steelhead and Bull Trout, as well as Spring Chinook and Coho salmon.

**4. Is your project in a Puget Sound Partnership Priority Floodplain? (5 points)**

*(Deschutes, Dungeness, Duwamish/Green, Elwha, Hood Canal, Lake Washington, Lower Skagit, Nisqually, Nooksack, Puyallup, Sauk, Skokomish, Skykomish, Snohomish, Snoqualmie, Stillaguamish, Upper Skagit)*

**Answer question 4 here: Yes**

**No X**

**5. Other benefits (40 points)**

Describe how your project maintains or improves agricultural viability, water quality, public open space/recreation access, economic development, or other important local benefits or values, and does not conflict with other objectives of this program. Projects receive points based on the importance of the result produced, the ability of the solution to address the overall stakeholder need and the long-term improvement.

- i. Agricultural viability (evidence of agricultural benefits include reductions in flooding (acres), protection from development (acres), improvement of drainage infrastructure (acres), or other capital or non-capital benefits to agricultural productivity).
- ii. Water quality improvement [e.g., through stormwater infrastructure upgrades, treatment of a TMDL or 303(d) issue, reduction in sediment, restoration of wetlands or riparian areas, implementation of related best management practices, etc.].
- iii. Public access and recreation (e.g., through land acquisition, the development of trails or other recreational infrastructure, etc.)
- iv. Other floodplain values or services of local importance.

**Answer question 5 here:** Yakima County is the number one County financial producer in Washington State in agricultural products and number two for processing of agricultural foods. Those products are primarily derived from diversion of Naches and Yakima Rivers flows. On the back opposite from the proposed levee removal, a new pump diversion was recently installed to serve the Matson Orchards on

the south side of the valley. This pump diversion replaces the diversion which was located in Nile Creek, that diversion was both a physical and low flow fish passage barrier for Chinook, Coho, Steelhead and Bull Trout in Nile Creek. The new pump diversion was installed as a fish enhancement/restoration measure. The continued erosion of the bank - which is worst at the location of the new pump - threatens that structure in terms of damage and use of the pump diversion during normal spring runoff. Removal of the levee upstream will lessen the pressure on the opposite bank and improve the function of the agricultural diversion.

#### **6. Cost-effectiveness (20 points)**

- i. Project will be judged on whether the budget is appropriate to the project scope, and designed for project success.
- ii. Describe how the project will be continued or maintained after the grant has been completed.
- iii. If project cannot be fully funded, explain how the project could be scaled downward.

**Answer question 6 here:** The project is relatively simple, without capital construction and costs, only demolition and the goals are easy to attain by promoting natural river processes that will sustain themselves, once initiated.

#### **7. Long-term cost avoidance: (30 points)**

- a. Describe how your project minimizes or eliminates future costs for maintenance, operation, or emergency response. **(15 points)**

**Answer 7.a. here:** Removes a levee, including its maintenance costs, and reduces damages to the downstream levee (protecting irrigation diversion and residences) and County Nile Road that the current levee directs flow toward.

- b. Describe how your project accounts for expected future changes to hydrology, sediment regimes, or water supply resulting from other floodplain management efforts, land use changes, extreme weather events, or other causes. **(15 points)**

**Answer 7.b. here:** As noted in 2 and 3 above the project is designed to reverse ongoing degradation and increase the responsiveness and vibrance of the system and system sediment deposits to future changes as opposed to control response and fight change. A return to natural processes and natural responsiveness increases the robustness of the system to increase currently curtailed flood risk and habitat benefits (natural cooling and oxygen levels in deposits). Key to that is the return to normative sediment movement through the system. Reach long (13 miles) sediment models are currently under construction by the Corps.

The Yakima basin runoff is managed by five Bureau dams to prolong snowpack runoff, and has extensive flow rule management to allow maximization of benefits to both agricultural and habitat sectors. The combined storage volumes of the dams are only 30 percent of the average annual basin runoff, so that modifications of the snowpack have significant implications. Increased drought frequency has occurred since the 1970's and led to the recent efforts by basin and State interests to provide more storage within the basin. This snowpack change has been attributed by many to due to the climate warming trend impact on snowpacks, also seen in the recent disappearance/recession of the nearby North Cascade glaciers.

The Yakima Basin, being located on the lee of the Cascade range, is probably the basin within Washington State that it is most vulnerable to snow pack modification through climate change. Macro models have indicated probable temperature increase and minor increased precipitation in the basin due to climate change. The use of micro models will show however that the effect of increased temperature will cause much of the snow currently carried over the Cascade crest to not reach the Yakima basin at all due to the state change converting near flat snow trajectories to near vertical rain trajectories. A huge volume of precipitation now reaching Yakima basin will not reach the basin due to a warming of only one degree. This phenomena was studied by BC

Hydro and National Weather Service for the Bridge Basin in BC during the 1990's. Altered snow packs and glacier retreat will change available sediment loads and flood nature/ sediment transport. In summary, climate change impacts probably will reduce Yakima basin runoff volumes and temperatures making hyporeic flows in floodplains, as proposed in this grant, more important for ESA and Salmonid species sustainability on the Columbia and in Eastern Washington.

We are interested in collaborating with NOAA, the UW Climate Impacts Group, and other partners to evaluate and quantify climate change impacts that could affect project design and implementation. We believe that designs should maximize the design elements/benefits noted above in this section that contribute to robustness in the face of change.

## **8. Demonstration of need and support (30 points)**

- a. Describe how your project is consistent with the intent of existing floodplain management or habitat recovery plans or is specifically identified through existing plans or work programs. (Elements of the project may have been developed through more than one planning process. Please identify the planning process used for each major element if they are not from a common plan.) (15 points)

**Answer question 8.a. here:** For this reach of the river a CFHMP has not yet been developed although we have completed new flood mapping, including RiskMap that has clearly identified flood issues and threats. We are employing the same approach adopted for the Lower Reach of the Naches which is within a CFHMP and has undergone significant planning refinements including the removal and setback of levees on the Naches River where their presence has shown to be non-productive, risk-inducing, degradational to river processes and non-sustainable long term. This has been due to their interruption of the sediment regime and unsuccessful attempts to resist the changes it brings about. This project is consistent with the Yakima Basin Salmon Recovery Plan which calls for an increase in floodplain habitat diversity and floodplain acquisition and restoration in this reach of the Naches River.

- b. Describe which flood control authorities, Tribal Nations, local governments, lead entities, key stakeholders or decision-makers representing floodplain interests located within the river reach or affected by the project have provided letters of support explicitly endorsing the project and its outcomes for their interests. (15 points)

**Answer question 8.b. here:**

## **9. Readiness to proceed and complete the proposed phase of the project (25 points)**

Describe how your project is ready to proceed with the scope of work, and your capacity to complete the project successfully and maintain it over time, including your project schedule and deliverables. Describe your experience with similar projects. If your project is acquisition only, describe how you will complete floodplain restoration subsequent to the acquisition.

**Answer question 9 here:** The project is designed, relatively simple, a single phase and without significant capital construction and costs, only demolition, and the goals are easy to attain by promoting natural river processes that will sustain themselves, once initiated. We have modeled and cost out the project but cannot finalize design until land purchases are made.

## **10. Pilot project and leverage opportunities (25 points)**

- a. If applicable, describe how your project could serve as a pilot effort or result in changes or results with broader impacts to the state. (10 points)

**Answer question 10.a. here:** We believe our approach of levee removal and setback with the use of pilot channel to strategically use the increased grade that was created over time (sediment deposition) by the to-be-removed structures and that this is opposed to efforts by others in the State to increase grade by deflection structures (more constriction). The former returns the

river back to its natural processes, while the others are increase the imbalance, will worsen the situation (more problems) and have short life spans.

- b. If applicable, describe how your project leverages existing investments, such as SRFB, FCZDs, Dike Districts, TMDLs, WWRP, ESRP, NEP, and other funding sources. Evidence of this will be based on the amount and diversity of the leveraged funding sources. **(10 points)**

**Answer question 10.b. here:** Unlike our projects this is a new SRF and basin entities for support and funding.

- c. If applicable, describe how your project addresses inequity or social justice issue by benefitting underserved communities. **(5 points)**

**Answer question 10.c. here:** This project will benefit the unincorporated residence of the Nile plus other small communities upstream on the Naches who can also be impacted by long term SR410 and Nile road closures.

**11. Budget** (add more tasks as needed).

Task	Amount Requested from Ecology*	Other Funding for Project** (20% of Total Cost Minimum)	Total Cost
Task 1--Administration	17,600	4,400	22,000
Task 2--Acquire parcels	111,200	27,800	139,000
Task 3--Complete Design of project	40,000	10,000	50,000
Task 4 –Acquire all necessary permits including SEPA	26,600	6,600	33,000
Task 5- Completed construction including removal of 700 ft. of levee	264,800	66,200	331,000
Task 6-Revegetation and completion of project	20,000	5,000	25,000
<b>Total</b>	<b>480,000</b>	<b>120,000</b>	<b>600,000</b>

\*Amount requested from Ecology under this grant program

\*\*Other sources of funding dedicated to this project. Insert narrative below that details what the source of funding is and whether or not it has been received or applied for but not yet received. Match must be at least 20% of Total Project cost.

**Narrative and/or Table of other funding sources for project, here:** The funding match of 20% will come out of the Yakima County Flood Control District.

If it's not possible to fully fund this proposal, please describe a *phased* approach that would still significantly advance the effort:

**12. SCOPE OF WORK:** Please attach a Scope of Work and schedule. If your proposal is a phase of a larger multi-year project, please place this proposal in the context of the overall project

and provide preliminary cost projects to complete the project.

13. **Maps:** Please attach at least two (2) maps to your application. The first map should be a vicinity map and the second should be a map of your project.
14. **Planting Maintenance/Survival:** If your project includes plantings, please provide a description of how you will ensure plant survival and maintenance. Native vegetation will be utilized for vegetation plantings in the disturbed areas.  
  
**The disturbed areas will be less than ½ of an acre, so plantings will be minimal. The only impediment to plant survival in this area is browsing by elk and deer, so Vexar tubing (mesh tubes) will be utilized to guarantee plant survival.**
15. **Photos:** Photos are not required, but if you think they enhance our understanding of your application, please include them. We are particularly interested in “before” photos that can be matched with “after” photos.
16. **Executive order 05-05, Archaeological and Cultural Resources** (online at [http://www.governor.wa.gov/office/execorders/eoarchive/eo\\_05-05.pdf](http://www.governor.wa.gov/office/execorders/eoarchive/eo_05-05.pdf)) directs state agencies to review all capital construction projects for potential impacts to cultural resources to make sure that reasonable action is taken to avoid adverse impacts to these resources. If this grant program is funded by the 2015 Legislature, successful grant applicants will be required to submit additional information to Ecology to comply with this Executive Order.

**Additional factors in ranking and award:** This is a very new funding source. To ensure that projects meet the objectives of the program, these additional factors will be considered in creating the proposed funding list:

- **Balance of project types:** Balance funding ready-to-proceed construction projects with funding pre-construction activities. This balance in project types is vital to ensuring success over time.
- **Geography:** There is strong interest in ensuring that projects in all areas of the state receive funding.
- **Advancing multi-benefit floodplain management:** It is important that the project list advance the principles and practical application of multi-benefit floodplain management.

### Certification

I certify to the best of my knowledge that the information provided above is true and correct and that I am legally authorized to sign and submit this information on behalf of the organization applying for this grant.

  
\_\_\_\_\_  
Signature

  
\_\_\_\_\_  
Date

Terry Keenhan, Water Resources Manager

\_\_\_\_\_  
Printed name and Title

Yakima County Public Services

\_\_\_\_\_  
Name of Organization Applying for Grant

