



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

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.

Project Title: Puyallup River Watershed Floodplain Reconnections

Organization/Jurisdiction Name: Pierce County Surface Water Management

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Legislative District(s) District 2 and District 25

County: Pierce

WRIA(s)10

Congressional District(s) District 8 and District 10

Specific Project Location

Section Township 20 Range 03 River Mile 2.3-28.1

Latitude 47.22627 Longitude 122.38082 GPS coordinates, if available

Major Watershed Project is in: Puyallup River

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 Puyallup River Watershed Floodplain Reconnections project is part of a larger 10-year vision for floodplain restoration likely to cost over \$200 M and part of a \$48 M dollar package submitted during Ecology's May pre-proposal process. Given potential funding limitations set forth by DOE this project and its results are described in Tier I (10 M) and Tier II (10 M) funding levels within the context of the overall results of the 10-year effort. The proposed project has four main components in both Tier I and Tier II: Acquisition; Floodplain reconnection implementation; Agricultural Programmatic, and Monitoring Programmatic. The establishment of measurable goals and a monitoring program will directly improve trust among various interests in ensuring that projects are selected, designed and built to achieve maximum benefits. Increasing the understanding of climate change impacts is also a part of the overall program stretching across all project components.

The effort focuses heavily on targeted acquisition and easements in both Tier I and Tier II to take advantage of opportunities to reconnect still intact habitat. Uniquely, this proposal establishes multiple areas for acquisition, so funds can be spent as availability/opportunities shift. This approach increases the pace of implementation and addresses a major barrier to floodplain improvement (seller willingness).

This proposal includes several construction and acquisition projects, which combine flood risk reduction, ecosystem benefits, salmon recovery and agricultural viability.

Tier I:

Puyallup River Floodplain Protection at Kapowsin Creek: construction

Orville Road Protection project: Land acquisition and design

Clear Creek Floodplain Reconnection project: acquisition

Tier II:

Horse Haven Creek Habitat and Floodplain Reconnection project: land acquisition and design

Neadham Road Levee Deconstruction and Setback Levee project: acquisition/design/const.

Clear Creek Floodplain Reconnection project: acquisition

The project includes an agricultural programmatic to discuss with stakeholders long-term impacts of seasonal flooding on floodplain agricultural lands, particularly lands on the water side of a setback levee, to determine strategies for integrating viable agricultural production with multiple-benefit floodplain projects, an agriculture conservation easement acquisition program, and a monitoring programmatic. The Clear Creek project will be a pilot project implementing the recommendations.

The monitoring programmatic convenes a working group of agency and tribal stakeholders to establish long-term goals and objectives and a monitoring plan to evaluate the success of various strategies such as levee setbacks, large woody debris placement, de-armoring of shorelines, habitat plantings, buffer installations, and agricultural land conservation in achieving collective goals. This highly collaborative effort establishes a floodplain health baseline and tracks landscape-level impacts to determine if floodplains are improving or degrading as projects are implemented.

While not covered in this proposal, but appearing in the larger 10-year vision described in the attached scope of work, acquisition and improvements in the White River are a high priority and are represented in part by the separate Boise Creek application submitted by King County. Further development of a vision and strategy in the Lower White are of import to multiple parties to this proposal.

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:

Per the Washington State Hazard Mitigation plan, flood risk in the Puyallup watershed is one of the highest in the State of Washington both in terms of frequency and magnitude of damage. Unfortunately, flooding is projected to worsen with climate impacts increasing flows and sediment and a rising sea further compounding flood risk around the Port of Tacoma and lower floodplain areas. Major floods occurred in 1996, 2006, and 2009 causing evacuations in Orting and other locations. Despite an aggressive buy-out program by Pierce County and new restrictive land-use policies in some areas, still over 9,000 homes and over 21,000 individuals are at risk of repetitive flooding as noted by floodplain mapping. Approximately 170 key facilities lie in the Puyallup watershed's floodplains and there are over 2.7 billion dollars worth of assessed value at risk. The Orville Road, at risk to flooding and erosion is considered a lifeline arterial providing singular access out of the Orting Valley to higher ground. The full suite of projects proposed in the current \$200 million plus, 10-year vision, would reduce flood risk in the Port of Tacoma and along Interstate 5, further protect houses, and reduce risk of inundation and failure of the Orville Road lifeline arterial.

The main strategy to reduce flood risk and exposure in large portions of Pierce County is to setback levees where possible to increase flood storage and capacity and buy out properties in high-risk areas. Preliminary acquisition efforts and general areas for setback levees can be seen in the attached Map Puyallup Watershed Floodplain Reconnection. Increasing the pace of acquisition is critical given development pressures in the area. The projects described below showcase specific priority acquisition areas, but in the event likely properties fall through during the project implementation period – acquisition funds are designed to be moved to other priority opportunities across the Puyallup watershed as listed in the scope. Specifics for the 10-year vision and projects are described in more detail in attached of the scope of work.

Tier I: Pierce County is currently in design for two projects in the lower Puyallup, the Clear Creek Acquisition and Levee and the Union Pacific Setback Levee (part of North Levee Road Setback Levee).

Tier I:

Puyallup River Floodplain Protection at Kapowsin Creek: (See Scope of Work)

Orville Road Protection project: (See Scope of Work)

Clear Creek Floodplain Reconnection project: This portion of the project begins at the confluence of the Puyallup River and Clear Creek; left bank at RM 2.9. In this high flood concern

area, backwater from the Puyallup River can stretch for over 3 miles, covering 400 acres and affecting dozens of farms and properties valued at more than \$42 million dollars. Flood events in this section of the Puyallup have occurred 5 times over the last 25 years. The first phase of the project focuses on property acquisition. Many of the properties have incurred repetitive losses from these flood events. Pierce County has assembled a list of property owners that have expressed willingness to sell their properties. The properties would be purchased and the structures removed from the floodplain and returned to open space or another compatible use such as agriculture.

Tier II:

Horse Haven Creek Habitat and Floodplain Reconnection project: (See Scope of Work)

Neadham Road Levee Deconstruction and Setback Levee project: (See Scope of Work)

Clear Creek Floodplain Reconnection project: See description above.

The work with the agricultural community and agricultural assessments will result in a more robust understanding of how agriculture can truly be a preferred floodplain use. This will be accomplished by looking at how to blend agricultural needs with reduced flood protection focused on agricultural use that will be on the inside of the levee as setbacks such as the Clear Creek Project move forward. This work includes a better and spatially specific understanding of waterside agricultural viability through home and structure elevations, critter pads or other flood risk reduction, and best management practices (crop timing relative to flood timing). This work will set the stage for a truly integrated agricultural viability and flood risk reduction effort.

Work will also explore the impacts in areas upriver where the current flood plan will reduce levee maintenance in many of the agricultural areas due to prioritization of funds and efforts. Funds spent on conserving agricultural lands and on acquisition will keep floodplain areas relatively free of intensive development that increase the magnitude and value of infrastructure and properties at risk to flooding where flood protection services are being reduced. Differences in Tier I and Tier II funding will largely be an increase in the amount of acreage purchased as will be noted as part of Question 5 below. The monitoring project will help reduce long-term flood risk by monitoring channel structure, sediment, conversion and protection of agricultural lands and improving project design and effectiveness.

Project proponents are partnering with the Climate Impacts Group over the next several months to better understand completed climate analyses and studies in the Puyallup and their relevancy to addressing known information needs and interests. This will help project proponents determine what additional climate impacts work is necessary to ensure future flood risks are adequately understood and planned for both for agriculture and flood risk reduction efforts. This preliminary survey will likely includes sea level rise, changes in hydrology, changes in sediment transport and deposition, impacts to agriculture in terms of magnitude and frequency of flood events, saltwater intrusion and drainage. Climate issues related to sediment, changing hydrology, and sea level rise have the potential to significantly impact flood risk in the highest value places such as the Port of Tacoma and cities such as Orting, Puyallup and Sumner.

They hope to have a fully fleshed out proposal (if deemed necessary and possible by the preliminary assessment and discussion) by early 2015 and may seek NOAA funding at that time.

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 four project components included as part of the overall Puyallup River Watershed Floodplain Reconnections project will significantly forward efforts to restore the ecosystem functions of the Puyallup River watershed. Expected ecosystem results would contribute to goals described in the Puget Sound Partnership Action Agenda and the "Vital Signs" metrics for Flood Plain reconnection, Chinook salmon and Estuaries. Expected long-term ecosystem results are also consistent with the Puyallup Salmon Habitat Protection and Restoration Plan and salmon recovery plan. The Reconnection Map attached shows the extent and potential scale of the 10-year vision with preliminary results for the ecosystem of:

- Reconnection of 1, 238 acres of floodplain habitat, including: off-channel habitats, enhanced channel migration zones, remnant side channels, large wetland complexes, a ground water tributary and a spring complex
- Installation of at least 9 engineered log jams

While it is important to tally acreage and levee setback miles, ultimately the ecosystem goals for the Puyallup are in simplest form to have a more functional floodplain ecosystem and on the salmon recovery side, to have more and more resilient fish. The Muckleshoot and Puyallup Tribes and salmon recovery effort as a whole is focused on improving rearing habitats in the Puyallup Watershed with an emphasis on restoring and improving riparian coverage for shade, food and shelter; providing off-channel and side channel habitats for flood refuge and rearing; and allowing for natural stream formation processes that provide cool water refuge, cover and other critical spawning and rearing environments for fish. As noted in part in the tally above, significant progress towards achieving these highest priorities is being planned.

Tier I:

Puyallup River Floodplain Protection at Kapowsin Creek: This project protects the floodplain associated with the confluence of Kapowsin Creek and the Puyallup River. Kapowsin Creek is one of the most productive salmon spawning streams in the Puyallup.

Orville Road Protection project: The project provides complexity to the river channel and promotes critical recruitment of woody debris providing refuge and rearing opportunities.

Clear Creek Floodplain Reconnection project: Acquisition in this area will ultimately provide over 500 acres of estuarine and side channel habitat, habitat which is difficult to reestablish in the highly urbanized central Puget Sound Basin and critical refuge for Puyallup fish during current and future flood events.

Tier II:

Horse Haven Creek Habitat and Floodplain Reconnection project: The connection of the Horse Haven Creek floodplain to the Puyallup River system will provide key refuge for juvenile salmon and continues and expands the ecosystem benefits of the South Fork project upstream.

Neadham Road Levee Deconstruction and Setback Levee project: Completed project will reconnect 200 acres of floodplain to the active river channel.

Clear Creek Floodplain Reconnection project: Continued acquisition in this project area with ultimate ecosystem benefits noted above. The reconnection of the floodplain allows the river to go back towards a natural state. The Puyallup in this reach is a braided river with multiple side channels that are critical for the survival and rearing of juvenile salmon.

These projects are critical steps towards improving populations of wild, spring and fall Chinook salmon. Spring Chinook habitat is very limited in Puget Sound with the Puyallup run representing the sole remaining population south of the Skagit River. This type of diversity is a key component of recovery. NOAA Fisheries has determined that the White River Spring Chinook salmon run must be restored if the population of Puget Sound Chinook salmon is to recover.

The partners in the Puyallup feel that the suite of efforts being put forth in Tier I, Tier II and the longer-term vision are a solid starting point for charting a course towards recovery while achieving other key needs such as flood risk reduction. Project partners acknowledge the long-term process for restoring the floodplains of the Puyallup watershed with an immediate emphasis on land acquisition, even over construction, as future opportunities are protected and landscape scale visions are further developed in partnership with other stakeholders.

The agricultural programmatic and easement acquisition components of the project also have important ecosystem and habitat benefits. The agricultural programmatic pilot project would identify strategies to incorporate viable agricultural production with multiple-benefit floodplain projects at the landscape scale, which could be used as an example throughout the region to accelerate the pace of multiple-benefit projects. Specifically this will look at best management practices for agricultural lands that improve water quality (including temperature) and habitat value while respecting needs associated with agricultural viability such as loss of land, pests and shading. Specifically, the effort will seek to balance floodplain restoration efforts with the needs of the agricultural community by determining the viability of agricultural lands within levee setback areas and determining best management practices necessary for water quality, fish and wildlife habitat, floodwater storage, groundwater recharge, and water supply to ensure long-term viability of the watershed's agricultural economy. This is especially critical if agricultural lands are to be situated inside of the levees and in conjunction with habitat restoration efforts. Both the programmatic component and easement acquisition component would protect farmland and preclude intensive development of farmland areas within the floodplain, avoiding the negative impacts to ecosystems and habitat that occur from that

development as previously noted. The Significant Hot Spots map shows currently farmed or farmable lands from an assessment completed last year by the Pierce County Agricultural Roundtable and The American Farmland Trust.

While a map has not yet been generated the overlays the levee setback areas with priority agricultural lands, a quick look between the two maps immediately shows the overlap. Two other recent efforts lend strategic focus to the agricultural programmatic and conservation efforts and their connection to achieving habitat restoration goals. The first is a confidential map highlighting Pierce County Agricultural Roundtable priority agricultural lands for voluntary conservation efforts, which has not been provided as part of this proposal. The second is a “cluster” map developed by Pierce County, which shows floodplain areas where farmlands and farming activities are still consolidated, PCAR Farmable Lands Map. Linking this work with high priority habitat restoration areas will help identify early on potential areas of conflict. Being able to work at the landscape scale will hopefully lead to more creative solutions where conflicts may exist. Finding the balance between agricultural preservation and habitat restoration inside of the levees is a critical long-term investment in further shaping and defining future projects. These exercises also allow for the type of analysis show in PCAR web maps.

The monitoring programmatic component would help both define a set of collective goals and ensure that the Floodplains by Design investment in the Puyallup watershed is leading to the desired ecosystem benefits. Since the Puyallup watershed project is a programmatic 10-year vision, the results of the monitoring programmatic can be used to improve future projects to increase ecosystem benefits. As a pilot project that could provide an example throughout the region, the monitoring component has the potential to help improve the results of floodplain habitat projects region-wide. The project would track indicators such as fish counts, temperature, total suspended solids, turbidity, nutrient loads, acres of agricultural lands converted or protected and presence of macroinvertebrates relative to established goals.

- 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 X No

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.

- a. 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).
- b. 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.].

- c. Public access and recreation (e.g., through land acquisition, the development of trails or other recreational infrastructure, etc.)
- d. Other floodplain values or services of local importance.

Answer question 5 here:

a. Agricultural viability

Agricultural viability is a key component of the project and will be approached through the agricultural programmatic component and through agriculture conservation easements.

In January 2013, County Executive Pat McCarthy and the County Council sponsored the Agriculture Initiative in order to strengthen support for the Pierce County Agriculture community, farming and farmers, and to ensure agriculture remains a viable component of our community. The Agriculture Initiative resulted in a comprehensive programmatic strategy: the Pierce County Agriculture Program. The Program recognizes the challenges and opportunities facing local farmers today and is dedicated to preserving and *sustaining* agriculture in Pierce County. At the same time the Pierce County Agricultural Round table also formed in collaboration with Pierce County's Agricultural Initiative and other agricultural interests across Pierce County. This broader stakeholder forum includes local and national land trusts, the Pierce County Conservation District, local farmers and other stakeholders interested in the long-term viability of the agricultural sector. PCAR has identified roughly 75,000 acres of farmland in Pierce County that is either currently farmed or farmable. They have formed an initial long-term vision of ensuring the protection of 50,000 acres, and permanent conservation of approximately 6,000 acres of the most-valuable and at-risk farmlands in the County, many of which occur within the Puyallup floodplain.

Under the Tier I investment in the Agricultural Programmatic work, we expect to a) pilot a methodology for better integrating the needs of the agricultural community into the County's critical floodplain management and ecological enhancement projects, and b) to provide seed funds to be leveraged to ensure permanent preservation of floodplain agricultural lands threatened by potential construction or other incompatible use. With the investment of Tier II, we expect to both expand our outreach and research to support the agricultural community impacted by the floodplain further upstream in the lower Puyallup reach, as well as at minimum double the impact of our easement acquisition seed funding, in terms of acres and land stewardship.

The objectives of the agricultural programmatic work are to:

- Address the long term impacts of seasonal flooding on valley bottom/floodplain agricultural lands, and provide research and recommendations on how these lands can provide multiple objectives;
- Identify alternative land use strategies to ensure continued viability of the basin's agricultural land base and economic sustainability, including identifying just compensation amounts for changing the way a farmer/landowner can do business;
- In partnership with the farming community, identify needs of the farming community to support long-term viability of farming and adaptation to changing basin hydrology; and
- Coordinate staff and partners to ensure timely and efficient completion of all identified tasks and deliverables associated with grant.

The conservation easement component would provide seed funding for a program to preserve valley bottom/floodplain farmland areas throughout the lower Puyallup reach in order to support long-term

floodplain improvement and protect of farmland and agriculture throughout the basin. This seed funding comes at a critical time in that it further supports the viability of an active agricultural partnership, Pierce County Agricultural Roundtable and the Pierce County Agricultural Initiative, by providing funding to start doing the work the group recently came to collective agreement upon over the last two years with The Russell Family Foundation Puyallup Watershed Initiative funding. The conservation easement program would place a heavy emphasis, though limited dollars relative to funds spent on land acquisition, on establishing an endowment consistent with national best management practices, to ensure conserved lands would be protected and free from encroachments in perpetuity. Establishing legal defense and annual monitoring stewardship endowments was highlighted as a key barrier in a recent analysis by many organizations across Puget Sound who have similar conservation programs and goals. Stewardship endowments would be set up to fund annual monitoring of preserved properties and to provide for legal defense of the easements if necessary. Funding for the conservation easement acquisition program would be leveraged with other grant funds to maximize the value of the Floodplains by Design investment. The table below shows the acres of farmland that could be preserved with the funding requested under Tier 1 (\$500,000) and Tier 2 (\$500,000) as well as the endowments that could be funded to ensure the farmland would be preserved in perpetuity.

	Tier 1	Tiers 1 and 2
Acres Preserved	50-100 acres	110-210 acres
Acres Preserved with Leveraged Funds	200-300 acres	410-610 acres
Legal Defense Endowment	\$50,000	\$50,000
Annual Monitoring Endowment	\$75,000	\$155,000

b. Water quality

The monitoring programmatic component of the project would provide water quality benefits by establishing some preliminary key goals and objectives and monitoring key chemical, biological, and physical indicators in the watershed. Indicators may include, but are not limited to:

- Landscape changes
- Fish counts
- Temperature
- Total suspended solids
- Turbidity
- Nutrient loads
- Agricultural lands
- Percentage of lands flooding
- Presence of macroinvertebrates
- Channel structure
- How sediment presence is changing and where it is being deposited

The monitoring work will be used to evaluate the effectiveness of the various strategies in the project, such as levee setbacks, large woody debris placement, de-armoring of shorelines, habitat plantings, buffer installations and agricultural land conservation. It also may shape future priorities or sequencing of efforts. Results can be used in design of future phases to increase water quality benefits.

d. Other floodplain values

The 10-year vision for the Puyallup will also include efforts to work closely with the Muckleshoot and Puyallup Tribes and other key stakeholders to identify current fishing sites and needs in project areas and work to increase access to fishing sites through restoration and protection efforts. There was not sufficient funding available in this round to address this important issue fully in Tier I or Tier II, but initial conversations about how to more fully scope and address this issue have begun.

1. Cost-effectiveness (20 points)

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

Answer question 6 here:

Pierce County as the lead project sponsor is committed to implementation of the Pierce County Flood Control, Salmon Recovery plans and the Agricultural Initiative. The formation of the Pierce County Flood Control Zone District will be providing a steady stream of funding for flood related projects and maintenance. The Lead Entity in partnership with the Muckleshoot and Puyallup Tribe will continue to solicit funds for Salmon Recovery. The Pierce County Agricultural Roundtable (PCAR), a coalition of working landowners, public agencies and non-governmental organizations implementing the strategies outlined in the 2006 Pierce County Agricultural Strategic Plan is also committed to the long-term viability of agriculture and understands the critical need to integrate across flood, fish and farms. PCAR will continue to engage the farm community and secure funding to protect and improve agricultural viability. The Farmland Conservation Committee, a working group of the PCAR also believes that FbD dollars set aside for farmland conservation can likely result in a 100% match, essentially doubling the acreage that can be conserved in perpetuity and maintained for multiple benefit of uses. The partnership of the flood and salmon recovery interests will continue to seek resources from opportunities like Floodplains by Design to refine and achieve the 10-year vision.

Tier I and Tier II have also been discussed throughout this proposal given the significant changes in results and effort so they will not be discussed further here.

2. 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: The goal is to move homes and infrastructure out of the Floodplain and allow natural processes to return wherever possible. Working with the river rather than attempting to control it will reduce our risk for damage and reduce the need for maintenance. The removal of homes from critical flood prone areas is a vital step to improve public health and safety. In areas where roads or other critical infrastructure exists that cannot be removed, steps will be taken such as to reduce long-term

maintenance as are described below in the Orville Road project example.

Projects like Neadham Setback Levee will eliminate a section of levee that has needed repairs, and replacement, every single year for the last 10 years. Orville Road projects prevent the need for emergency flood protection measure to keep Orville road open.

Tier I:

Puyallup River Floodplain Protection at Kapowsin Creek:

Orville Road Protection project:

Clear Creek Floodplain Reconnection project:

Tier II:

Horse Haven Creek Habitat and Floodplain Reconnection project:

Neadham Road Levee Deconstruction and Setback Levee project:

Clear Creek Floodplain Reconnection project:

The project also seeks to minimize long-term costs by focusing on acquisition assuming land costs and development pressures will rise on the floodplain lands (agricultural and other), particularly as levees are recertified and development rights are restored to floodplain farmlands just upstream from the Clear Creek levee setback area. By preserving these floodplain priority lands now for both levee setback options and open space farm use will further reduce long-term costs for future residential flood buyouts. Ensuring that the agricultural community needs around water supply, flood risk reduction, and production viability are integrated into current flood risk reduction and salmon habitat projects will also decrease long-term maintenance costs for some of the County's best remaining agricultural lands by ensuring they remain in active, adaptive management.

The Floodplains by Design investment in the Tier II phase of this proposal will enable the collaboration to expand the scope of our pre-construction agricultural programmatic work to a broader reach of the lower Puyallup Basin. In this, the outreach with the agricultural community and seed funds for farmland easement acquisitions can help defer additional costs of potential floodplain development pressures further upstream along the Puyallup reach, into additional areas facing some of the highest residential development pressures in the basin.

- 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: Pierce County is working closely with the Army Corps of Engineers and has commissioned a hydraulic and hydrological model for the lower 8 miles of the Puyallup River that will be evaluated within the findings from the climate assessment. Hydraulic and hydrological modeling for the upper Puyallup is already completed and ready for use in project design. There are multiple variables that can change the Hydrology of the basin, present and future channel geometry; sea level rise due to climate change; and placement of flood control infrastructure. This model is close to completion and will also be featured in the Army Corps of Engineers General Investigation. The model will be

used in the design and implementation of projects over the 10-year vision. The Army Corps of Engineers General Investigation for WRIA 10 looks at the system primarily for flood control projects any habitat, or agricultural benefits would be created out of mitigation for these projects.

Project proponents will also be partnering with the Climate Impacts Group and NOAA Regional Climate Services to determine what additional climate assessments may be of use to improving the resiliency of the program and scoping out a budget and scope for the NOAA resource opportunity as noted earlier in the application.

The project is also focused heavily on targeted acquisition cognizant of the high growth pressure that will preclude or make future opportunities more expensive, impossible or more limited in scope. According to a 2012 study by American Farmland Trust, Pierce County has lost farmland at a faster rate than any other County in the Puget Sound region, with more than 70% of the County's farmland lost since 1950 (USDA Ag Census). With a population that has grown by over 44% since 1980 alone (WA State OFM), and limited areas of the County suitable for residential development, Pierce County's best remaining farmland in the Puyallup basin has faced critically high rates of development pressure. As Pierce County's population is projected to rise on this trajectory over the next 15 years, acquisition of farmland easements in floodplain areas is a critical component of the County's flood hazard management planning and continued support for a viable agricultural sector.

The monitoring programmatic component of the project will address future changes in climate and hydrology by establishing a floodplain health baseline and track key biological and physical indicators, including landscape changes, channel structure, and sediment. Data gathered through the monitoring program can be used to ensure that future phases of floodplain work in the Puyallup watershed are responsive to future changes to hydrology and climate as well as other changes on the landscape caused by shifts in land-use or development pressures.

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:

Stakeholders in the Puyallup River watershed are in a unique position to simultaneously make significant strides towards accomplishing flood risk reduction objectives, improve ecosystem functions critical to achieving salmon recovery goals, and provide for a sustainable future for agriculture in Pierce County. As the fourth largest floodplain in Puget

Sound, the Puyallup River watershed (including the White, Carbon and Puyallup rivers) has one of the highest flood risks in terms of both frequency and magnitude in the State. Its future flood risk is expected to grow with climate impacts that deliver more sediment, increased peak events and a rising sea that backs up flood flows where an estimated \$2.7 billion dollars worth of infrastructure is at risk, including the Port of Tacoma. The Puyallup is also home to the last remaining Spring Chinook run in south Sound and is a critical piece of salmon recovery for the Puget Sound Evolutionarily Significant Unit for both its fall and spring Chinook populations. As noted just in the section above, agricultural lands are being lost at the highest rate in Puget Sound and pressures are expected to rise not diminish over the coming years.

To address these issues, the Puyallup watershed is beginning to collectively shape a more than \$200 plus million dollar package of visionary projects as part of a 10-year vision (see attached Floodplain reconnection map) and establish collective goals and a monitoring program to ensure success is met over time for all stakeholders. This growing vision is supported by both flood risk and salmon recovery proponents, with new partnerships and connections to agriculture, water quality and climate impact experts rapidly forming. The Tier I (10 million) and Tier II (\$10 million) proposals contained herein represent a portion of this larger effort and partnership.

Starting in late 2013, a Puyallup River stakeholders group was formed with representatives from the City of Puyallup, City Of Sumner, Pierce Conservation District, PCC Farmland Trust, Forterra, Muckleshoot Indian Tribe, Puyallup Indian Tribe, the WRIA 10/12 Lead Entity for Salmon Recovery, King County and Pierce County. The group identified a suite of projects and areas for improvement that when combined provides significant flood control and ecological lift to the river as a system and will ultimately reconnect over 1,238 acres of floodplain, significantly reduce flood risk, conserve farmlands, clarify goals and measure progress. The 1,238 acres will provide key habitats and ecosystem functions including, but not limited to off-channel habitats, enhanced channel migration zones, remnant side channels, large wetland complexes, a ground water tributary and a spring complex. 9 engineered log jams will also provide refuge and reducing flood risks in the some of most vulnerable and important areas.other fish benefits. This vision builds off of and is consistent with the findings and priorities the 2013 *Pierce County Rivers Flood Hazard Management Plan*, Puyallup Watershed Salmon Habitat Restoration and Protection Strategy and the 1998 Levee Setback study. Partners are excited by the aggressive program and landscape scale vision that is beginning to take shape of which Tier I and Tier II would represent significant movement demonstrating both local and State support and a broad commitment to increase the pace of implementation for floodplain work.

This project also represents the first significant partnership and integration between Puyallup area agricultural interests, flood risk reduction proponents and salmon recovery advocates. As noted above, agriculture is at a key tipping point if it is to remain an active and viable industry in the face of significant development pressures. This program is a critical component of the Pierce County Agricultural Roundtable's strategy to maintain and support agriculture in the Puyallup valley. Farms are repeatedly flooded (see photos of Clear Creek flooding in the attached documentation) and at risk of future flooding. Farms are also experiencing drainage problems and other issues related to the changing hydrology and sediment patterns resulting from significant development and a changing climate.

Developing a robust floodplain vision and strategy for action is crucial to agricultural viability in this area. It also is a first step through the agricultural programmatic work and the monitoring work to bring water quality issues into the discussion and planning.

- 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: see 8.a.

It is the understanding of the project proponents that the following organizations are working to provide letters of support to this project:

Pierce County Executive's Office

Pierce County Agricultural Initiative

Pierce Conservation District

Forterra

Muckleshoot Tribe

Puyallup Tribe

PCC Farmland Trust

WRIA 10/12 Pierce County Lead Entity for Salmon Recovery

Pierce County Surface Water Management is the submitting party.

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:

Readiness of the projects is described below following the Tier I and Tier II structure.

Tier I:

Puyallup River Floodplain Protection at Kapowsin Creek and Orville Road Protection Project: Preliminary engineering is complete and scopes have been developed for the proposed construction projects. Hydraulic and hydrological modeling for the upper Puyallup area (location of these two projects) is complete and the model for the lower portion of the river is nearing completion.

Clear Creek Floodplain Reconnection project: Pierce County owns several parcels within the project area and has established an "interested Parties" list. The list includes property owners who have approached the County expressing interest in selling their properties to the County once funding becomes available.

Tier II:

Horse Haven Creek Habitat and Floodplain Reconnection project: Preliminary engineering is complete and scopes have been developed for the proposed

construction projects. Hydraulic and hydrological modeling for the upper Puyallup area (location of these two projects) is complete and the model for the lower portion of the river is nearing completion.

Neadham Road Levee Deconstruction and Setback Levee project: 19 parcels need to be acquired. Public meeting for neighborhood has occurred. Almost all properties have submitted in writing their willingness to sell.

Clear Creek Floodplain Reconnection project: Pierce County owns several parcels within the project area and has established an “interested Parties” list. The list includes property owners who have approached the County and would like to be purchased as well as individuals who have started the process and are awaiting funding.

There are also other identified high priorities for acquisition that are in the queue if circumstances arise that preclude use of funds in the two proposed acquisition targeted locations.

The Pierce County Agricultural Roundtable (PCAR) has developed a site-specific map of high-priority farmed or farmable lands and a “cluster map” showing where agricultural lands are most consolidated (Map D). PCAR is ready to begin working with salmon recovery and flood risk reduction leaders and staff to outreach to the farm community to further refine and improve a long-term vision. The data assembled by the Roundtable enables the Roundtable to identify the primary points of integration between priority agricultural lands and priority floodplain projects, helping inform a joint strategy for outreach and compensation. The existence of preliminary levee setback areas will help focus the agricultural assessments regarding drainage, water availability, and climate impacts. Finally, the work through Pierce County’s Agricultural Initiative and PCAR relationships have been built in the agricultural community that will improve the likelihood of success in completing acquisition projects and meeting established deliverables. The Conservation District will be facilitating a process across the water quality, agricultural, salmon recovery and flood risk reduction efforts to assign key priorities and monitor the overall success of the 10-year program over time, beginning in the later part of this funding cycle. As a key leader in the community, the Pierce County Conservation District is well-suited to play this key role and facilitate this process.

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:

The suite of Puyallup floodplain projects - and the partnership and vision that helped to create it - embodies the Floodplains by Design vision. While the level of current funding is not sufficient yet to implement the full suite of efforts the community is ready to undertake, our community is poised to make improvements to the floodplain at a magnitude and scale of significance. Project partners and proponents

believe the larger Puyallup effort can be held up as an example of what Floodplains by Design is ultimately striving for: landscape scale integrated floodplain investments that significantly put us as a region on the path to reducing our significant flood risk and exposure, restoring floodplain functions that support and drive salmon recovery and protecting and improving important cultural and economic industries such as agriculture, outdoor recreation and commercial fishing among others. The Clear Creek floodplain reconnection project serves as a pilot project for the Puyallup River Floodplain Reconnections. This project includes most of the attributes critical to the improvement of the Puyallup River system. The project will improve and restore estuary, wetland, riparian and floodplain habitats; protect and enhance recreational opportunities; and preserve and expand agricultural uses in the Puyallup's floodplains.

The innovative idea of moving acquisition dollars quickly across a larger landscape is potentially a key model for many areas of Puget Sound experiencing continued rapid development or development of areas with vested plats and building rights despite new tighter restrictions. Acquisitions at a large scale could potentially save millions of dollars in future costs, prevent additional flood risk from being realized, and secure larger areas of land for flood storage, conveyance, and habitat improvements. The Puyallup project proponents also believe that efforts at this scale might also be the best opportunity to simultaneously protect and improve agriculture by addressing some of the flooding, water supply and drainage questions.

The agricultural programmatic has the potential to provide an important example to the region and state as a whole. This project component is designed to examine the specific needs of agriculture in designing and implementing multiple-benefit floodplain projects. The pilot effort in the Clear Creek area will conduct specific assessments to understand agricultural needs and what will be necessary to have viable agriculture inside levees that simultaneously supports habitat and flood objectives.

Throughout the state, few resources are spent on getting collective agreement amongst key stakeholders on goals and establishing a jointly agreed upon monitoring program to assess the effects of work done. The monitoring programmatic element of this project is a comprehensive, long-term, and collaborative plan to address this issue in the Puyallup watershed. Thus, the in-depth work to truly understand floodplain agriculture coupled with a rigorous commitment to achieving collective goals and monitoring, layered with a sophisticated knowledge of flood risk will add critical information to key regional discussions from Treaty Rights at Risk to American Farmland Trusts' reports on the rapid rate of farmland loss.

- 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:

Projects in the Puyallup River system have been funded by multiple funding sources, including SRFB, FEMA, NRDA, PSAR, WWRP, LWCF, ALEA and the Public Works Trust Fund. Local match comes from stormwater fees, REET, Conservation Futures and the Pierce County Flood Control Zone District. Many of these funds will again be used for match for this current suite of projects and past investments will continue to be leveraged by these additional projects. The Puyallup Floodplain Reconnection Project leverages efforts initiated by other organizations such as the Puyallup Tribe, The Russell Family Foundation and the Port of Tacoma.

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

Answer question 10.c. here:

The benefitting of underserved communities is seen as the project acquires and removes structures from the frequently flooded areas. Many of these structures are mobile homes or rentals and the people that are hurt the most are the portion of society that can least afford the financial hit that comes from flooding. That portion of the population is served by no longer having these deceptively affordable housing stock that comes at a price after the flood.

11. Budget – Tier I -- 10 Million (add more tasks as needed).

Task	Amount Requested from Ecology*	Other Funding for Project** (20% of Total Cost Minimum)	Total Cost
Task 1 Administration	100,000.00	20,000.00	120,000.00
Task 2 Ag Integration and Assessments	450,000.00	186,250.00	636,250.00
Task 3 Ag. Land & conservation easements	500,000.00	500,000.00	1,000,000.00
Task 4 Upper Puyallup land Acquisition (Orville Road) & Kapowsin Cr. Const.	3,750,000.00	750,000.00	4,500,000.00
Task 5 Lower Puyallup Land Acquisition (Clear Cr.)	5,150,000.00	1,030,000.00	6,180,000.00
Task 6 Measurable Goals and Monitoring	290,000.00	58,000.00	348,000.00
Total	10,240,000.00	2,544,250.00	12,784,250.00

*Amount requested from Ecology under this grant program

**Matching funds include previous property acquisitions, design, and construction expenditures over the last 10 years within the reach for projects intended to provide multiple benefits. Eligibility of those previous expenditures can be determined with DOE but should consider local fund use and use of other

agency's grants such as FEMA mitigation grants used for purchase and removal of houses. Local funds come from Pierce County's Real Estate Excise tax allocated toward river work and the Flood Control Zone District and also The Russell Family Foundation.

If it's not possible to fully fund this proposal, please describe a *phased* approach that would still significantly advance the effort: The proposal is already phased in that it is only funding a portion of several projects and programmatic. This is described throughout the proposal given the complexity of this project. Less money will mean less acquisition or less design work.

Budget – Tier II (additional 10 million in addition to funding above)

Task	Amount Requested from Ecology*	Other Funding for Project** (20% of Total Cost Minimum)	Total Cost
Task 1 Administration	100,000	20,000	120,000
Task 2 Ag Integration and Assessments	250,000	50,000	300,000
Task 3 Ag. Land & Conservation Easements	500,000	100,000	600,000
Task 4 Upper Puyallup land Acquisition (Needham) & Horse Haven Construction	4,000,000	800,000	4,800,000
Task 5 Clear Cr. Floodplain Reconnection	3,500,000	700,000	4,200,000
Task 5 Middle Reach Riverside Area	2,000,000	400,000	2,400,000
Task 6 Measurable Goals and Monitoring	250,000	50,000	300,000
Total	10,600,000	2,120,000	12,720,000

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.
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) 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

Toby Rickman, Deputy Director

Printed name and Title

PIERCE County

Name of Organization Applying for Grant