

**YAKIMA RIVER BASIN
ECOSYSTEM RESTORATION
YAKIMA COUNTY, WASHINGTON**

APPENDIX C

Measures Screening Table

June 2018

**Integrated Feasibility Report and
Environmental Assessment**



**US Army Corps
of Engineers®**
Seattle District

SECTION 1135 - YAKIMA RIVER AT UNION GAP ECOSYSTEM RESTORATION PROJECT

Scoring Scale Definition	Score
No Change from Existing Conditions, or Impacts to Other Infrastructure	0
Ecosystem Benefit Low, or Ease of Implementation Low	1
Ecosystem Benefit Moderate, or Ease of Implementation Moderate	2
Ecosystem Benefit High, or Ease of Implementation High	3

Planning Objectives

- Restore connectivity of river to floodplain habitats
- Improve riparian areas
- Restore side channels
- Promote native plant diversity

Constraints

- Cannot result in increased flood risk or decreased life safety
- Must be implemented in a way as to ensure capture of old gravel pits does not cause harm/damage
- Must be implemented in a way that does not lead to capture of Buchanan Lake
- Recreation facilities (trails) that are displaced will need to be replaced

Measures	Ecosystem Benefit										Ease of Implementation										TOTAL SCORE				
	EFFECTIVENESS					COMPLETENESS					ACCEPTABILITY					EFFICIENCY									
Acres of Habitat Restored	Justification	Restoration of Habitat-Forming / Sustaining Processes	Justification	Assumed Magnitude of Off-Site / Downstream Benefit	Justification	Addresses Planning Objectives	Justification	Does Not Rely on Elements Outside of the Project to Deliver Benefits	Justification	Complements Regional Planning Efforts and Goals	Justification	Considers Constraints	Justification	Impacts to Existing Flood Control Features and Induced Flooding Risks	Justification	Real Estate Complexity	Justification	Overall Constructability of Alternative	Justification	Impacts to Utilities or Existing Infrastructure	Justification	Scale to Warrant or Justify USACE Participation	Justification		
DID #1 FLOODPLAIN PROCESS RESTORATION	3	Most acres	3	Restores habitat forming channel formation/meander processes & groundwater exchange processes.	3	700 acres of downstream benefits	3	Addresses objectives.	3	Would achieve restoration objectives independently.	3	Yes - the largest opportunity to reestablish floodplain connectivity, side channels, etc; a stated priority for the reach in various regional planning documents.	2	Need to consider risks associated with gravel pits.	3	Alleviate downstream impacts to Union Gap and I-82 (less erosion, WSE). Increased channel migration in restored floodplain.	2	Requires purchase of 6 parcels; less complicated than Victory Lane	2	Wetland impacts; gravel pits	3	Takes stress off of I-82 and WWTP	3	Fits within CAP limit; large restoration potential; tie to Corps levee system	33
FLOODPLAIN TOPOGRAPHIC RESTORATION	1	Less acreage	3	Restores habitat forming channel formation/meander processes & groundwater exchange processes.	1	Minimal downstream eco benefit given smaller scale	3	Addresses objectives.	3	Would achieve restoration objectives independently.	2	Addresses restoration goals, but lesser magnitude than DID1	3	Does not conflict w/ constraints.	3	Reduces erosive force on south end of right bank Fed levee; increases storage	2	Requires relocation of portion of a private business, plus other land acquisition	3	No constructability challenges	2	Involves modifying existing Fed levee	1	Could easily be implemented independently by the Sponsor.	27
KOA FLOODPLAIN RESTORATION	2	Moderate acreage	3	Restores habitat forming channel formation/meander processes & groundwater exchange processes.	2	Channels formed here could continue into downstream area;	3	Addresses objectives.	3	This measure would be treated as dependent on DID#1 measure; no dependencies external to project.	2	Addresses restoration goals, but lesser magnitude than DID1	3	Does not conflict w/ constraints.	3	Increases storage; reduces erosive forces on right bank levee.	3	Minimal real estate required	3	No constructability challenges; good quality borrow source for use elsewhere in project	3	No impacts	2	Medium scale	32
SPORTSMAN ISLAND CHANNEL RESTORATION	2	Moderate acreage	3	Restores habitat forming channel formation/meander processes & groundwater exchange processes.	2	Upstream and downstream benefits (Downstream benefits restored, dynamic sediment distribution processes support habitat structure suitable for native fish)	3	Addresses objectives.	3	Would achieve restoration objectives independently. Necessary property and/or flood easements already held by County.	2	Addresses restoration goals, but lesser magnitude than DID1	3	Does not conflict w/ constraints.	3	Reduces erosive pressure on levees; increases storage	3	Public lands	2	Dry channels in upper 1/3 of island (drive right across)	3	No utilities	3	Smaller than DID1, but still big enough; sizeable channel work w/ links to FRM and Fed levee	32
SPORTSMAN UPSTREAM GROIN REMOVAL	1	Less acreage	3	Restores hydraulic processes at upstream end of Sportsman channels	2	Increases likelihood of channel formation through Sportsman Island	3	Addresses objectives.	3	This measure would be treated as dependent on Sportsman measure; no dependencies external to project.	1	Addresses restoration goals, minor component.	3	Does not conflict w/ constraints.	2	No impacts to levee system effectiveness	3	Public lands	3	No particular constructability challenges	2	Involves modifying existing Fed levee	1	Could easily be implemented independently by the Sponsor.	27
LAKE BUCHANAN SPURS	1	Less acreage	3	Restores hydraulic process at upstream end of Sportsman channels	2	Increases likelihood of channel formation through Sportsman Island	3	Addresses objectives.	3	This measure would be treated as dependent on Sportsman measure; no dependencies external to project.	1	Addresses restoration goals, minor component.	3	Does not conflict w/ constraints.	3	Reduces erosive pressure on right bank levee	3	Public lands	3	No particular constructability challenges	2	Involves modifying existing Fed levee	1	Could easily be implemented independently by the Sponsor.	28
VICTORY LANE SETBACK	1	Less acreage	3	Restores habitat forming channel formation/meander processes & groundwater exchange processes.	1	Lack of connectivity to floodplain immediately downstream. Small scale.	3	Addresses objectives.	3	Would achieve restoration objectives independently.	2	Addresses restoration goals, but lesser magnitude than DID1	3	Does not conflict w/ constraints.	2	Would bring floodwaters closer to private lands.	1	Requires relocation of portion of multiple private businesses, plus other land acquisition	2	Moderate constructability challenges	2	Some utilities present	2	Moderate scale.	25
OLD Y9 CHANNEL RESTORATION	1	Less acreage; some has already been done by removing levee	3	Restores habitat forming channel formation/meander processes & groundwater exchange processes.	2	Downstream benefits - hydraulics more conducive to channel formation through Terrace Heights point bar?	3	Addresses objectives.	1	Depends on modifying Roza wasteway and Terrace Heights bridge	2	Addresses restoration goals, but lesser magnitude than DID1	3	Does not conflict w/ constraints.	3	Alleviates levee pressures right across river and downstream	3	Public lands	2	Getting everything in line to construct (new bridge and intake structure)	0	Bridge modification; sewer pipes; intake structure	2	Corps would not be involved in bridge or Roza modifications; overall level of effort moderate?	25
NOB HILL FLOODPLAIN RESTORATION	1	Less acreage	3	Restores habitat forming channel formation/meander processes & groundwater exchange processes.	2	Removes constraints to natural flow just upstream of DID#1 floodplain restoration area.	3	Addresses objectives.	3	Would achieve restoration objectives independently.	2	Addresses restoration goals, but lesser magnitude than DID1	3	Does not conflict w/ constraints.	3	Increases storage; reduces erosive forces levee.	2	Small scale, willing landowners	3	No particular constructability challenges	3	No utilities	2	Moderate scale.	30
BLUE SLOUGH AUTOMATED HEADGATE	3	Narrow, but long area of benefit; when flooding and as channels meander, more acreage will benefit	3	Restores hydrological connection of river to eastern portion of target area, enabling channel formation/meander and groundwater exchange processes there.	3	Complements DID1 by restoring hydrology on eastern side of natural floodplain w/in project footprint and downstream	3	Addresses objectives.	2	Relies on ongoing O&M of headgate at Sportsman Park	3	Widely supported by regional conservation planning groups	3	Does not conflict w/ constraints.	2	Involves modifying Federal levee; allows more flow in Slough, including portions outside of levee.	3	Flowage easements may be needed; straightforward to acquire	2	Working in levees present challenges generally, though no particular challenges identified.	3	No utilities	3	Benefits from Corps expertise in hydraulics, and levee safety	33
BLUE SLOUGH CULVERTS	3	Narrow, but long area of benefit; when flooding and as channels meander, more acreage will benefit	2	Improves effects of automated headgate by allowing flows conducive to use throughout the year by all life stages of fish	3	Complements DID1 by restoring hydrology on eastern side of natural floodplain w/in project footprint and downstream	3	Addresses objectives.	3	This measure would be treated as dependent on Headgate measure; no dependencies external to project.	3	Widely supported by regional conservation planning groups	3	Does not conflict w/ constraints.	3	No impacts	3	Construction easements may be needed; straightforward to acquire	3	Straightforward construction	3	No utilities	1	Sponsor could implement independently	33
LOWER BLUE SLOUGH CONNECTION	2	Introduces hydrology to lower portion of DID #1 setback area and floodplain to the south	2	Restores hydrological connection of river to southeastern portion of target area, enabling channel formation/meander and groundwater exchange processes there.	3	Complements DID1 by restoring hydrology on eastern side of natural floodplain w/in project footprint and downstream	3	Addresses objectives.	3	This measure would be treated as dependent on DID#1 measure; no dependencies external to project.	2	Addresses restoration goals, but lesser magnitude than DID1	3	Does not conflict w/ constraints.	3	No impacts	2	Multiple landowners; all willing.	3	Straightforward construction	3	No utilities	2	Moderate scale	31

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WSDOT PILOT CHANNELS	2	Moderate acreage	2	Restores habitat forming channel formation/meander processes & groundwater exchange processes.	2	Restoration of dynamic sediment distribution processes that support habitat structure suitable for native fish	3	Addresses objectives.	3	Would achieve restoration objectives independently. Necessary property and/or flood easements already in public ownership	2	Addresses restoration goals, but lesser magnitude than DID1	3	Does not conflict w/ constraints.	3	Reduces erosive pressure on levees; increases storage	3	Public lands	3	Straightforward construction	3	No utilities	2	Moderate scale	31
GREENWAY TRAIL ARMOR REMOVAL	2	Moderate acreage	3	Restores habitat & groundwater exchange processes but to a lesser degree than other measures.	2	When channels form naturally, hydrology would be introduced to floodplain downstream	3	Addresses objectives.	3	Would achieve restoration objectives independently. Necessary property and/or flood easements already in public ownership	1	Minimal (but positive) impact at regional scale	3	Does not conflict w/ constraints.	3	No impacts	3	Public lands	3	Straightforward construction	3	No utilities	1	Sponsor could implement independently	30
SPRING CREEK RECONNECTION	2	Moderate acreage	3	Restores habitat forming channel formation/meander processes & groundwater exchange processes.	3	Most benefit area is upstream of measure footprint; fish passage restored to stream.	3	Addresses objectives.	3	Would achieve restoration objectives independently. Necessary property and/or flood easements already in public ownership	3	Immediate restoration of identified key habitat that is scarce in the region	3	Does not conflict w/ constraints.	3	No impacts	3	Public lands	3	Straightforward construction	3	No utilities	1	Sponsor could implement independently	33