

# Memorandum of Agreement

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Concerning

Implementation of the Fish and Wildlife Hydraulic Code  
for Transportation Activities

Agreement Between  
Washington State Department of Fish and Wildlife  
and  
Washington State Department of Transportation

July 2016



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## Table of Contents

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Purpose.....	4
Objectives .....	4
Definitions .....	4
I. Early Coordination on Construction Projects: Planning, Scoping, & Design.....	11
II. Coordination on Maintenance Activities .....	12
III. Coordinating Hydraulic Project Approvals .....	15
IV. Guiding Principles .....	19
V. Training.....	29
VI. Fish Passage .....	29
VII. Chronic Environmental Deficiency (CED) Program .....	32
VIII. Mitigation for Impacts to Fish Life and Fish Habitat Resulting From Routine and Emergency Maintenance Work .....	35
IX. Work Related To Emergency Culvert & Barrier Replacement .....	36
X. Conflict Resolution .....	39
XI. Duration of MOA .....	39
Signatures.....	40
Appendix A: Maintenance Mitigation Tables .....	41
Appendix B: Barnes Creek Agreement .....	48
Appendix C: Guidance for Implementing the Hydraulic Code .....	51

### FIGURES

Figure 1: Example of a River, Stream, Altered Natural (Channelized) Stream and Ditch. ....	5
Figure 2: Cross-Section of a Typical Road Structure (Open Drainage System) .....	10
Figure 3: Cross-Section of a Typical Road Structure (Closed Drainage System).....	10

### TABLES

Table 1: HPA Timelines and SEPA Requirements .....	15
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This Memorandum of Agreement (MOA) is made between the Washington State Department of Fish and Wildlife, hereafter referred to as WDFW, and Washington State Department of Transportation, hereafter referred to as WSDOT.

## Purpose

The purpose of this MOA is to establish and promote mutual agreement of the needs and mandates of the respective agencies, to facilitate the consistent and efficient administration of Hydraulic Project Approvals (HPAs) for transportation projects under Chapter 77.55 RCW (Construction Projects in State Waters), and Chapter 220-660 WAC (Hydraulic Code Rules); to ensure that fish passage projects are facilitated through Chapter 77.57 RCW (Fishways, Flow, and Screening); and to facilitate the implementation of the Chronic Environmental Deficiency (CED) Program. This agreement replaces the *MOA Concerning Administration of Hydraulic Project Approvals for Transportation Activities, May 2008*.

## Objectives

1. Work cooperatively to ensure that state transportation projects protect fish life and habitats, and ensure the consistent and efficient administration of Chapter 77.55 RCW (Construction Projects in State Waters), Chapter 220-660 WAC (Hydraulic Code Rules), and Chapter 77.57 RCW (Fishways, Flow, and Screening) for transportation projects.
2. Work cooperatively to ensure that WSDOT can fulfill its mission to safely, effectively, and efficiently build, operate, and maintain state transportation systems, and WDFW can fulfill its mission to preserve, protect and perpetuate fish, wildlife and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities.
3. Work cooperatively to identify and evaluate potential project impacts on fish life and habitat, and to reach accord on mitigation measures early in the design process to facilitate project design and construction while ensuring protection of fish life.
4. Work cooperatively to provide active support, funding, training and guidance within and between WDFW and WSDOT to meet the intent of this agreement.

## Definitions

For purposes of this MOA the following definitions apply:

**Altered Natural (channelized) Stream:** A natural stream that has been altered by man into a feature that intercepts and conveys the natural stream parallel or perpendicular to the roadway structure (Figure 1, pg. 5).

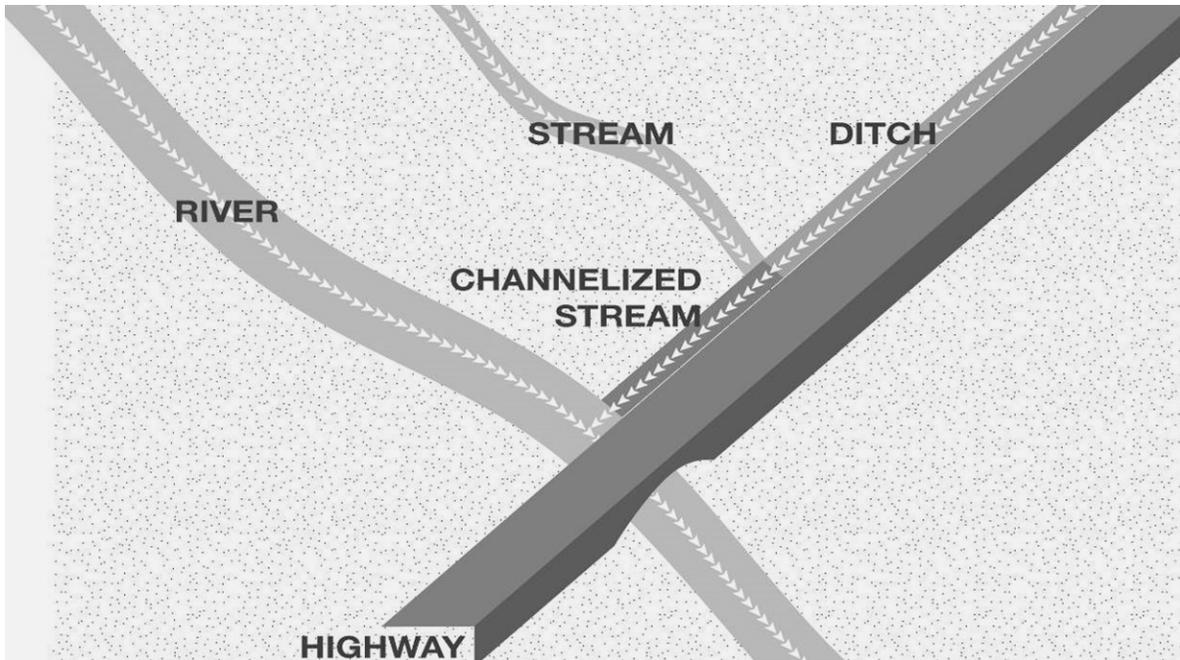


Figure 1: Example of a River, Stream, Altered Natural (Channelized) Stream and Ditch.

**Aquatic Protection Permit System (APPS):** WDFW's online HPA permitting system. The system is available at [WDFW's website](#). APPS allows applicants to submit an HPA application and supporting documentation. Applicants can also check the status of their application, convert their application into a JARPA, correspond with WDFW staff, search for HPAs, and comment on other HPA applications.

**Best Management Practices: (BMPs):** Schedules of activities, prohibitions of practices, physical structures, maintenance procedures and other management practices to reduce pollution or to provide habitat protection. Some examples of BMPs that comply with the Hydraulic Code rules can be found in the [Regional Road Maintenance Endangered Species Act Program Guidelines](#) (Part 2). Also, WSDOT's [Temporary Erosion and Sediment Control \(TESC\) Manual \(Chapter 5\)](#) includes BMPs that protect fish habitat.

**Construction project:** WSDOT projects that fall under the Capitol Budget category which include the following budget programs; Improvement (I), Preservation (P), New Building Construction (D3), Ferry Construction (W4), Highways and Local Programs (Z2), and Rail (Y/V). Capitol project activities are typically bid out to contract. Capitol project activities may involve the construction or acquisition of new assets or work that results in the improvement and/or addition to a highway that increases capacity or utilization, extends the useful life, or changes the function. Maintenance or repair of a currently serviceable structure is not a capitol project.

**Chapter 77.55 RCW:** The statutory authority for Hydraulic Project Approvals; requires persons and government agencies to secure WDFW approval for hydraulic projects prior to conducting work. Also known as the Hydraulic Code.

**Chapter 77.57 RCW:** The statutory authority for fish passage requirements and for screening of water diversions.

**Chapter 220-660 Washington Administrative Code (WAC):** The administrative and technical rules to implement Chapter 77.55 RCW. Also known as the Hydraulic Code Rules.

**Chronic Danger:** A condition the County Legislative Authority can declare for any property, except for property located on a marine shoreline, that has experienced at least two consecutive years of flooding or erosion that has damaged or has threatened to damage a major structure, water supply system, septic system, or access to any road or highway (RCW 77.55.021(15)).

**Chronic Environmental Deficiency (CED):** Locations along the state highway system where recent, frequent, and chronic maintenance and/or repairs to the state transportation infrastructure are causing impacts to fish and/or fish habitat (e.g., more than three repairs or maintenance activities are made to the highway or associated infrastructure within a 10 year timeframe at the same location).

**County Legislative Authority:** The elected body in each county, typically the county commission, within the state of Washington with legal authority to enact the laws of the county. County Legislative Authority does not include appointed administrators or other county employees.

**Ditch:** A man-made open conveyance system (wholly artificial watercourse) that collects, carries, holds, inhibits or diverts the movement of storm water or groundwater from the facility or adjacent properties (Figure 1).

**Emergency:** An immediate threat to life, the public, property, or of environmental degradation (RCW 77.55.011(7)).

**Environmental Compliance Assurance Procedure (ECAP):** WSDOT procedure that outlines reporting, communication, and notification requirements for all instances of non-compliance with environmental laws, regulations, permits, and agreements.

- For construction projects see [Chapter 1 of the Construction Manual](#)
- For maintenance see [ECAP for Maintenance Activities](#).

**Fish Habitat Enhancement Project (FHEP):** Streamlined permit process for projects that are designed to enhance fish habitat. Qualified projects that meet the criteria (see RCW 77.55.181(1)(a)) are not subject to the requirements of the State Environmental Policy Act and no local governments may require permits or charge fees (RCW 77.55.181(2) and (4)).

**Fish Life:** "Fish life" means all fish species, including food fish, shellfish, game fish, unclassified fish and shellfish species, and all stages of development of those species (WAC 220-660-030(55)).

**Hydraulic Project:** The construction or performance of work that will use, divert, obstruct, or change the natural flow or bed of any of the salt or fresh waters of the state (RCW 77.55.011(11)).

**Hydraulic Project Approval (HPA):** A written approval issued by WDFW for a hydraulic project, or a verbal approval issued by WDFW for an emergency hydraulic project (WAC 220-660-030(77)). For the purposes of this agreement, there are five categories of HPAs that WDFW typically issues to WSDOT– standard, emergency, imminent danger, chronic danger, and expedited - described as follows:

1. **Standard HPA:** A written approval for a hydraulic project that does not meet the criteria for an emergency, imminent danger, chronic danger, or expedited HPA (RCW 77.55.021). An individual standard HPA is limited to a single project site. There are standard HPAs that may cover multiple project sites:
  - a) **Fish Habitat Enhancement Project (FHEP) HPA:** May cover single or multiple sites.
  - b) **Multisite HPA:** Issued under RCW [77.55.021](#) for hydraulic projects occurring at more than one specific location and which includes site-specific requirements (WAC 220-660-030(103)).
  - c) **General HPA:** For work at multiple, unspecified locations under one HPA. Statewide general HPAs (GHPA) supersede existing regional or area specific GHPAs. A statewide GHPA does not typically supersede individual standard HPAs.
2. **Emergency HPA:** A verbal or written HPA issued in response to a declaration of emergency (WAC 220-660-030(39)). Only WDFW, the County Legislative Authority, or the governor may declare and continue an emergency (RCW 77.55.021 (12)(a)).
3. **Imminent Danger HPA:** A written approval for a hydraulic project where a declared imminent danger exists per RCW 77.55.021(14).
4. **Chronic Danger HPA:** A written approval for a hydraulic project where a declared chronic danger exists (RCW 77.55.021(15)).
5. **Expedited HPA:** A written approval for a hydraulic project when WDFW determines that normal permit processing would result in significant hardship for the applicant or unacceptable damage to the environment (RCW 77.55.021(16)).

**Immediate Threat:** A threat to life, the public, property, or of environmental degradation that is likely to occur within 24 hours or less, derived from RCW 77.55.011(7).

**Imminent Danger:** A threat by weather, water flow, or other natural conditions that is likely to occur within 60 days of a request for a permit application (RCW 77.55.011(12)).

**Improvement Project (Program):** Projects that provide solutions to identified deficiencies in the state highway system:

1. Mobility (I-1) which mitigates congestion on urban highways; provides uncongested conditions on rural highways; provide bicycle connections of state highways within urban growth areas; completes the Freeway HOV Lane system in the Puget Sound region.
2. Safety (I-2) which is for collision reduction.
3. Economic Initiatives (I-3) which includes all weather highways; new Safety Rest Areas; Bridges that restrict movement of trucks (low clearance or load restrictions); 4-foot bike paths on shoulders of designated rural bicycle-touring routes; freight corridors that experience delays due to avalanche and flood closures.
4. Environmental Retrofit (I-4) that includes fish barrier removal and CED projects.

**Joint Aquatic Resource Permits Application (JARPA):** The written application form to be used when requesting an HPA.

**Maintenance:** Those activities directed and/or funded by WSDOT Maintenance and Operations Program and Ferries that are conducted on currently serviceable road and ferry terminal structures, facilities, and equipment involving no expansion or use beyond that previously existing. The Maintenance Mitigation Tables in Appendix A include examples of maintenance activities conducted by WSDOT (not all inclusive).

1. **Scheduled Maintenance:** Budgeted and anticipated work performed on a regular basis. Scheduled maintenance is intended to maintain the Road Structure or ferry terminal facility so that it substantially retains its original intended use and function.
2. **Unscheduled Maintenance:** Unscheduled maintenance work activities are similar to scheduled maintenance activities except that work is unanticipated:

**Non-Emergency** - Unanticipated work that occurs due to unusual weather conditions, vandalism, accidents, or other unexpected factors.

**Emergency** - Maintenance activities that are required to alleviate an emergency condition. Emergency maintenance activities may be the same as or similar to, scheduled maintenance activities except that they may be greater in magnitude and scope depending upon the nature and intensity of the emergency.

All maintenance repair activities (emergency or otherwise) are limited in scope in order to restore the Roadway Structure or ferry terminal facility to its pre-existing condition. The activity entails only that work necessary to stabilize the integrity of the roadway or structure.

**Mitigation:** Sequentially avoiding impacts, minimizing impacts, or compensating for remaining unavoidable impacts to fish life or habitat that supports fish life.

**Mitigation Sequence:** The successive steps that WDFW and WSDOT must consider and implement to protect fish life when constructing or performing work. These steps must be considered and implemented in the order listed:

1. Avoid the impact altogether by not taking a certain action or parts of an action.
2. Minimize unavoidable impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking steps to reduce impacts.

3. Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reduce or eliminate the impact over time.
5. Compensate for remaining unmitigated impacts by replacing, enhancing, or providing substitute resources or environments.
6. Monitor the impact and take appropriate corrective measures to reach the identified goal.

**Plans, Specifications, and Estimate (PS&E Package):** The set of final project design documents, also known as the PS&E package, used to prepare the HPA permit application. These documents are created during the PS&E stage, which refers to the final months of detailed project design when HPA permitting generally occurs.

**Preservation Project (Program):** Projects that preserve the highway infrastructure that cost-effectively protect the public investment include:

1. Paving (P-1) which includes repaving highways and restoring existing safety features.
2. Structures (P-2) which includes preserving existing structures for operational and structural integrity; and reducing catastrophic failure from naturally occurring events.
3. Other Facilities (P-3) which includes refurbishing rest areas; stabilizing unstable slopes; construction of weigh stations; and rehabilitation or replacement of existing major drainage features to preserve operational and structural integrity.

**Priority Habitat and Species (PHS) Data:** The means by which WDFW provides important fish, wildlife, and habitat information to local governments, state and federal agencies, private landowners and consultants, and tribal biologists for land use planning purposes.

**Protection of Fish Life:** Avoiding, minimizing unavoidable impacts, or compensating for remaining impacts to fish life and the habitat that supports fish life through mitigation sequencing.

**PS&E Package:** See definition for Plans, Specifications, and Estimate.

**PS&E Stage:** The final months of detailed project design, when WDFW typically issues HPA permits.

**Road Structure:** The components of a road, including roadway, shoulders, drainage features, sediment containment, retention/detention, utilities permits/franchises (telecommunication, gas, electrical, etc.), street lights, and traffic signals. Typical road structure cross-sections are depicted in Figures 2 & 3, page 10.

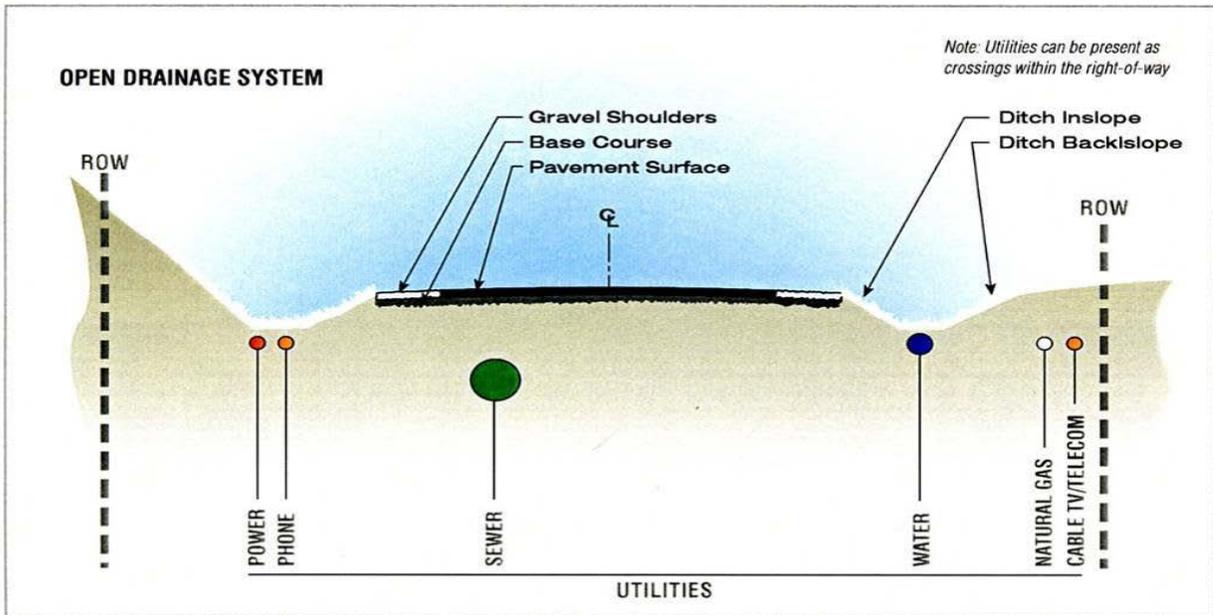


Figure 2: Cross-Section of a Typical Road Structure (Open Drainage System)

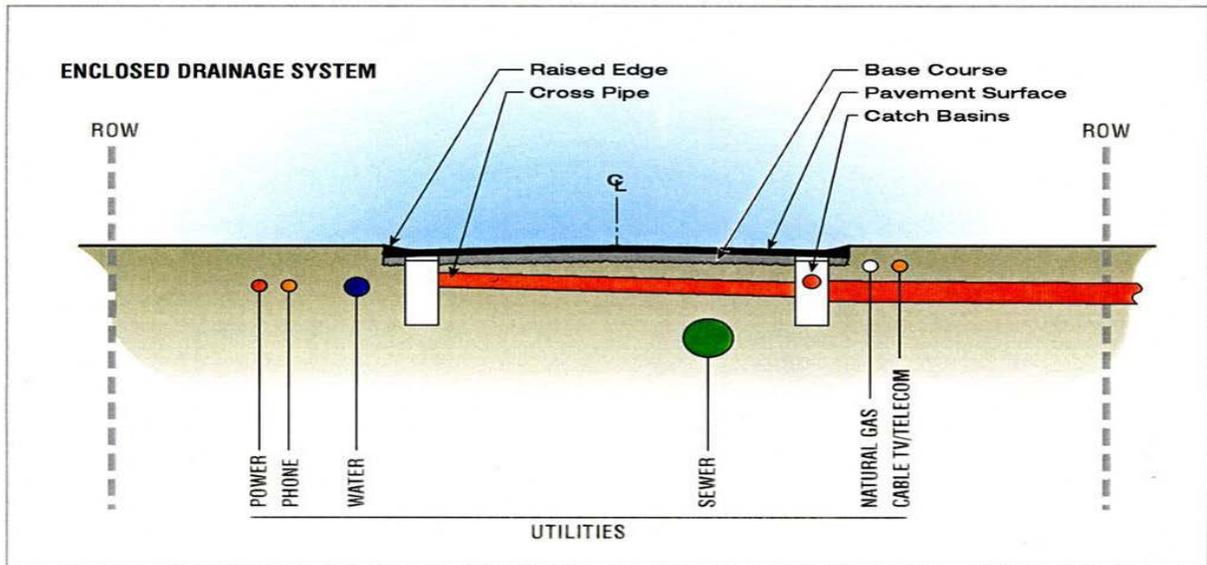


Figure 3: Cross-Section of a Typical Road Structure (Closed Drainage System)

**SEPA (State Environmental Policy Act):** The State Environmental Policy Act encompassed by RCW 43.21C.

**Watercourse and River or Stream:** “Watercourse,” “river” or “stream” means any portion of a stream or river channel, bed, bank, or bottom waterward of the ordinary high water line of waters of the state. Watercourse also means areas in which fish may spawn, reside, or pass, and tributary waters with defined bed or banks that influence the quality of habitat downstream. Watercourse also means waters that flow intermittently or that fluctuates in level during the year, and the term applies to the entire bed of such waters whether or not

the water is at peak level. A watercourse includes all surface-water-connected wetlands that provide or maintain habitat that supports fish life. This definition does not include irrigation ditches, canals, storm water treatment and conveyance systems, or other entirely artificial watercourses, except where they exist in a natural watercourse that has been altered by humans (WAC 220-660-030(153)).

**WDFW:** Washington Department of Fish and Wildlife

**WSDOT:** Washington State Department of Transportation

## **I. Early Coordination on Construction Projects: Planning, Scoping, & Design**

WSDOT and WDFW encourage early coordination during the planning, scoping, and design of construction transportation projects. Early coordination helps to identify and address important environmental considerations before significant design decisions are made. Close coordination between WSDOT and WDFW in the early stages of project development helps to ensure fish habitat considerations are adequately addressed, and that subsequent permitting actions are predictable, timely and effective. Therefore:

### **WSDOT Must**

1. Solicit WDFW input during the project scoping and planning phases.
2. Review WDFW's current PHS and Fish Distribution data relevant to the project boundaries and vicinity.
3. Contact WDFW for information on resource protection needs and possible measures to mitigate potential project impacts, including work windows for sampling and construction activity.
4. Update WSDOT's PHS database at least every six months by contacting WDFW's PHS Program for new data.
5. Consult WDFW Fish Passage and Diversion Screening Inventory (FPDSI) Database to determine if fish passage problems are identified in the project area. If barriers are identified, then refer to Section VI - Fish Passage of this MOA for further guidance.
6. Use existing BMPs when designing projects that potentially affect fish life or fish-bearing water bodies.

### **WDFW Must**

1. Review information submitted by WSDOT to provide early input and recommendations for potential mitigation measures. Early involvement by WDFW during the design phase helps to ensure that the alternative analysis considers WDFW regulatory expectations, such that the final design is permitted under Chapter 77.55 RCW. Early project planning and design dialogue should address:

- a) Project design and alternatives that avoid and minimize impacts to fish life or habitat that supports fish life, and compensate for remaining unavoidable impacts to fish life.
- b) Data gaps.
- c) Applicability of existing interagency agreements, guidance, and permits to project design.
- d) Potential permit conditions and other mitigation, including opportunities to restore or enhance habitat at other sites.

## **II. Coordination on Maintenance Activities**

### **A. Scheduled Maintenance**

Each spring, WSDOT and WDFW must jointly preview scheduled maintenance activities for the upcoming year. Meetings should be held in each of the WSDOT regions, either at each Maintenance Area, or in a combination of Maintenance Areas when appropriate. The WSDOT Maintenance Area Superintendent or Regional Maintenance Environmental Coordinator (RMEC) must schedule meetings in coordination with the WDFW Regional Habitat Program Manager (RHPM) and Habitat Biologists (HBs) responsible for the maintenance area. Representatives from the WSDOT Maintenance Office should include the Area Maintenance Superintendent, Assistant Maintenance Superintendent, Supervisors, and Lead Techs. WSDOT and WDFW may invite other representatives from their agencies, if deemed beneficial to the overall purpose of the meeting, such as the WDFW Habitat Engineering Section Manager, WDFW Protection Division Manager, WSDOT Regional Maintenance Engineer (or representative), and WSDOT Permit Program Staff.

If, in the opinion of the Area Maintenance Superintendent, there is not a sufficient number of proposed scheduled maintenance activities to warrant a meeting, specific projects will be discussed with the local HB by phone, or email, and site reviews will be set up as necessary.

#### **The intent of the Spring Meeting is to discuss**

1. Upcoming maintenance projects that may involve work adjacent to, or within a water body under the jurisdiction of WDFW.
2. Establish if WDFW thinks a site review for a particular project is warranted.
3. Whether planned projects are covered under an existing GHPA, Multisite HPA, or will require an Individual HPA.
4. Chronic repair/maintenance problems encountered that should be recommended for the CED program.
5. Ways to improve the coordination between WDFW and WSDOT in the permit process (notification, permit application, existing permits, and methods to simplify and expedite the processes for both agencies).
6. Lessons learned from the previous year's maintenance projects and areas for improvement.

7. Any other topics of joint concern.

### **WSDOT Spring Meeting Responsibilities**

1. Provide a location for the meeting.
2. Prior to the meeting provide WDFW with a list of work that may require HPAs.
3. Prior to, or at the meeting, provide:
  - a) Pictures, and other information, of proposed projects to be discussed.
  - b) Information on why the proposed work needs to be accomplished and the method that will be used to accomplish the work.
  - c) Copies of any General, Multisite, or Individual HPAs that may cover proposed work.
4. Take meeting notes and provide copies to attendees.

### **WDFW Spring Meeting Responsibilities**

1. Ensure the HBs who are responsible for the proposed projects listed by WSDOT are in attendance.
2. Provide feedback as to whether the proposed project is covered by an existing General, Multisite, or Individual HPA, or will require a new HPA.
3. Determine whether a field review of a project is necessary to decide if an HPA will be required. This includes determining whether the waterbody falls under WDFW's jurisdiction (stream versus ditch).
4. Provide information regarding anticipated fish resources that may be impacted by project activities and potential mitigation for those impacts.

## **B. Unscheduled Maintenance**

Unscheduled maintenance may be required for any number of reasons or events. Unscheduled maintenance may require a standard, imminent danger, expedited or an emergency HPA, depending upon the nature and urgency of the problem to be addressed. In the event of unscheduled maintenance:

1. WSDOT must use the process and procedures identified in in this MOA to identify whether a standard, chronic danger, expedited, imminent danger or emergency HPA should be requested from WDFW.
2. Unless a specific HPA exists that authorizes it, WSDOT must submit the appropriate application for the proposed unscheduled maintenance activity to WDFW.
  - a) **Standard HPA:** Unless the criteria for a chronic danger, expedited, imminent danger or emergency HPA exist, WDFW will process the application as a standard HPA. WSDOT should arrange for a site review with the HB, and the procedures for a standard HPA will be followed.

- b) **Chronic Danger HPA:** If a chronic danger exists, and has been declared by the county legislative authority, WDFW will process the application as a chronic danger HPA. WSDOT should arrange for a site review with the HB, and the procedures for a chronic danger HPA will be followed.
  - c) **Imminent danger and expedited HPAs:** If an imminent danger situation exists, and has been declared by the County Legislative Authority or WDFW, WDFW will process the application as an imminent danger HPA. If no imminent danger exists but processing the application as a standard HPA would result in significant hardship to WSDOT or unacceptable damage to the environment, WSDOT may request an expedited HPA. WDFW will determine whether issuing an expedited HPA is warranted in cases of significant hardship or unacceptable damage to the environment. For both types of HPAs, WSDOT should arrange for a site review with the HB, and follow the appropriate procedures.
  - d) **Emergency HPA:** In some circumstances, the problem may meet the criteria for an immediate threat. WSDOT must immediately contact WDFW by phone or in person, and the procedures for an emergency HPA will be followed.
3. WSDOT must not begin unscheduled maintenance work until it receives a written standard, chronic danger, expedited, imminent danger or emergency HPA or a verbal emergency HPA, and the allowable work window is reached.

### III. Coordinating Hydraulic Project Approvals

#### A. Applying for HPAs

WSDOT must submit a complete application whenever applying for an HPA. With the exception of emergency HPAs, which may be applied for verbally or in writing (see Table 1), WSDOT must use the most recent version of the JARPA or use APPS to apply for HPAs.

Neither WSDOT’s application for an HPA or WDFW’s acknowledgment of receipt of an application constitutes approval by WDFW of the proposed project. Work on any hydraulic project must not occur until WSDOT receives written approval for standard, expedited and imminent danger HPAs, or verbal or written approval for emergency HPAs.

Table 1: HPA Timelines and SEPA Requirements.

HPA Categories	Requirements and Limitations	How to Apply	How long does it take?	Need Proof of SEPA?
<b>Standard</b>	Needed to conduct certain types of work activities in or near the water.	<a href="#">APPS</a> Online Application	Up to 45 days after submitting a complete application.	Yes
<b>Standard - Fish habitat enhancement project (FHEP)</b>	Must meet the specific criteria in <a href="#">RCW 77.55.181</a> . Note: This is a type of a standard HPA.	<b>Apply for streamlined processing through the <a href="#">APPS</a></b>	Up to 45 days after submitting a complete application.	No
<b>Emergency</b> <a href="#">See contact numbers</a>	Must be an immediate threat to people, property, or the environment anticipated to occur within the next 24 hours AND when the situation meets the criteria for an emergency in <a href="#">RCW 77.55.021(12)</a> .	Call <a href="#">Habitat Biologist</a> (during office hours) or <a href="#">Emergency Hotline at (360) 902-2537</a> (after hours)	Verbal or written approval from WDFW is required to proceed.	No
<b>Imminent danger</b>	When the situation meets the criteria for an “imminent danger” in <a href="#">RCW 77.55.021(14)</a> . Permit expires within 60 days, no extensions allowed.	Contact <a href="#">Habitat Biologist</a> to discuss application process.	Up to 15 days after submitting a complete application.	No
<b>Chronic danger</b>	Issued in response to county declaration of a “chronic danger” when the situation meets the specific criteria in <a href="#">RCW 77.55.021(15)</a> .	<a href="#">APPS</a> Online Application	Up to 45 days after submitting a complete application.	Yes, unless the project meets FHEP criteria
<b>Expedited</b>	When normal processing time would result in significant hardship for the applicant or unacceptable damage to the environment. Permit expires within 60 days, no extensions allowed.	Contact <a href="#">Habitat Biologist</a> to discuss application process.	Up to 15 days after submitting a complete application.	No

A complete standard HPA application must include information generally derived from the PS&E package—project design, construction methods, and proposed mitigation. This

information is required so the HB can assess project impacts and complete mitigation needs based on a thorough understanding of the project design. An application for a standard HPA must be submitted to WDFW when final project plans are near completion.

Specific application requirements for each type of HPA are described in [Chapter 2 of the Complete Permit Application Guidance](#) and [RCW 77.55.021](#).

## **B. Processing HPAs**

Because expedited, imminent danger and emergency HPAs require rapid processing, the procedures for these HPAs differ from those for standard HPAs. WSDOT and WDFW have agreed on the following to ensure WDFW can process the requests as quickly as possible:

### **Design and Mitigation**

WDFW and WSDOT will strive to agree on design and mitigation prior to final HPA application submittal. Unresolved design and mitigation issues must be addressed per Section X – Conflict Resolution. If WDFW and WSDOT cannot resolve design and mitigation issues at the local level, either party may request that the WDFW Habitat Protection Division Manager mediate discussions, or may proceed up their agency chain-of-command to resolve the disagreement. If direct discussions, mediation, or elevation fails to resolve the disagreement, WDFW will issue the HPA with the conditions that WDFW believes are necessary to protect fish life. WSDOT may appeal WDFW's decision within 30 days of HPA issuance (see Section X - Conflict Resolution).

Within ninety days after a hydraulic project authorized in an expedited, imminent danger or emergency HPA is completed, any remaining impacts must be mitigated or a mitigation plan must be submitted to the department for approval. If WSDOT completes the process outlined in Sections VIII and IX of this agreement it will satisfy this requirement for situations involving routine and emergency maintenance work.

### **Processing Expedited and Imminent Danger HPAs**

#### **1. Imminent Danger situation**

- a) If an Imminent Danger exists, either the County Legislative Authority or WDFW may declare that an imminent danger exists per RCW 77.55.021(14).
- b) WDFW must approve the application for expedited or imminent danger HPA within 15 calendar days of receiving a complete, written application per RCW 77.55.021(14) and RCW 77.55.021(16).
- c) If WDFW receives an application that is complete for review purposes but does not fully mitigate direct and indirect impacts to fish life, the HB must identify where mitigation is deficient, or how impacts might be avoided or reduced, and work with WSDOT within the 15-day review period to modify the application to ensure impacts to fish life are mitigated. The 15-day review period cannot be suspended.

- d) If WDFW and WSDOT cannot resolve issues follow the “Design and Mitigation” guidance provided above.
2. Expedited situation
  - a) If an Imminent Danger does not exist but processing an application for standard HPA will cause increased economic costs, unacceptable project delays, other hardships on WSDOT, or unacceptable environmental damage, WSDOT may request WDFW to process the application for issuance of an expedited HPA per RCW 77.55.021(16).
  - b) WSDOT must include written justification for the request with the application.
  - c) If WDFW concurs, the application will be processed per steps (1)(b) to (d) above.
  - d) If WDFW does not concur, the application will be processed as a standard HPA.
3. Imminent danger and expedited HPAs may be written for a period of not more than 60 days and cannot be renewed.
4. Approval by WDFW must be in writing, and WSDOT will only conduct work following approval.

### **Processing Emergency HPAs**

1. While WSDOT is mandated by the authority of RCW 47.28.170 and RCW 47.32.130 to protect and restore highways in the event of an emergency, WSDOT emergency response actions that fall under WDFW jurisdiction must be consistent with RCW 77.55.021(12) and this MOA. In these cases, emergency means “an immediate threat to life, the public, property, or of environmental degradation, arising from weather or stream flow conditions or other natural conditions,” and immediate means: “...likely to occur within 24 hours or less.”
2. When an immediate threat exists, only the Governor, County Legislative Authority, or WDFW may declare that an emergency as defined in RCW 77.55.011(7) exists.
3. If no valid HPA for the activity to address the declared emergency exists, WSDOT must contact WDFW, and identify that a hydraulic project emergency exists. WDFW will determine whether an emergency declaration has been made or qualifies for WDFW declaration. If an emergency is declared, WDFW must immediately grant verbal approval before work begins. If not, then WDFW will inform WSDOT of other options for permit coverage.
  - a) During normal business hours WSDOT will contact the local HB. If unable to contact the HB, WSDOT will contact the HB’s supervisor (Assistant Regional Habitat Program Manager (ARHPM)). If unable to contact either the HB or the ARHPM, WSDOT will call the Emergency Hotline at (360) 902-2537.
  - b) After normal business hours WSDOT will call the Emergency Hotline at (360) 902-2537. The first WDFW emergency responder reached by the Hotline operator will contact WSDOT for emergency HPA approval.
4. Although RCW 77.55.021 (12)(b) requires WDFW to provide immediate verbal approval, WSDOT and WDFW will strive to agree on a written emergency HPA within 24 hours.

5. All conditions of the emergency HPA must be communicated to WSDOT by WDFW at the time of approval and must be put in writing within 30 days.
6. Whenever possible WDFW will conduct a site visit before issuing an emergency HPA.
7. Emergency work will typically be the minimum necessary to eliminate the emergency condition. Repairs will be limited to emergency fixes necessary to maintain the safety and serviceability of the road and ferry terminal structures, facilities, and equipment.
8. If compensatory mitigation is necessary to properly protect fish life, such mitigation must be applied per Section VIII or IX. Additional repair and mitigation work that may be necessary will require separate submittal of an application for a standard HPA.
9. WSDOT must conduct its emergency repair work in the most environmentally sensitive manner possible, using the menu of BMPs outlined in the most current version of the Regional Road Maintenance Endangered Species Act Program Guidelines, except as modified in the HPA.

## **IV. Guiding Principles**

### **A. HPA Compliance**

#### **1. WSDOT Conduct of Hydraulic Project Work**

WSDOT understands that it is obligated under Chapter 77.55 RCW to obtain and follow the conditions of an HPA for any hydraulic project it undertakes. Therefore, WSDOT agrees to:

- a) Not begin work on any hydraulic project prior to WDFW issuing an HPA.
- b) Comply with all the conditions of the HPA. WSDOT must also require any entity operating under a WSDOT contract to comply with all the conditions of the HPA.
- c) Consult with the HB that wrote the HPA to clarify any HPA provisions that its contractors are confused about (in writing if appropriate) prior to engaging in any work related to those conditions.

#### **2. Streams and Ditches**

WSDOT agrees that WDFW must determine whether a water body is classified as a stream, a channelized stream, or ditch for HPA purposes and to abide by those determinations.

- a) The presence of fish in a ditch does not necessarily subject the ditch to jurisdiction under the Hydraulic Code.
- b) To avoid and minimize downstream impacts to fish life, maintenance work by WSDOT in ditches must follow the BMPs outlined in the most recent version of the Regional Road Maintenance ESA Program Guidelines.

#### **3. Use of Fish Screens**

WSDOT must use fish screens on diversion devices in accordance with RCW 77.57.010 and WAC 220-660-120.

#### **4. WSDOT Contract Provisions**

The HPA is an agreement between WSDOT and WDFW. Therefore, WSDOT must:

- a) Incorporate all applicable provisions of the HPA into the construction contract between WSDOT and its contractor to ensure the project is biddable, constructible, and enforceable.
- b) Retain a copy of the HPA and any plans or other documents required by the HPA on the jobsite.

#### **5. Pre-Construction Meetings**

The WDFW HB must have the opportunity to attend all appropriate preconstruction meetings between the contractor and WSDOT to discuss the provisions of the HPA.

The purpose of these meetings is to review the requirements and expectations related to

all aspects of the construction project, including environmental elements, with the contractor prior to beginning work.

## **6. Site Inspections**

WDFW reserves the ability to conduct site inspections without notification.

- a) While work is in progress, WDFW must coordinate site inspections of hydraulic projects with the WSDOT Construction Project Engineer (PE) to ensure consistency with all applicable safety requirements for the job site.
- b) All site visitors must abide by Department of Labor and Industry requirements for proper Personal Protective Equipment (PPE) while on site. This equipment generally consists of a hardhat, safety vest, and proper footwear.

## **7. Modifying HPA Provisions**

Following issuance of the HPA, WSDOT should contact the HB if the project design changes or circumstances arise that require permit modifications. If adjustment to the HPA is needed, follow the modification requirements included in the HPA.

The HB must notify WSDOT anytime conditions of the HPA may need to be modified due to changed conditions per RCW 77.55.021(10). The HB may modify or revoke an existing HPA when new biological or physical information indicates the need for such action. The HB must discuss such changes with WSDOT prior to taking any action.

## **8. Monitoring and Reporting Compliance with HPAs**

- a) WSDOT must adhere to the [Maintenance](#) or [Construction](#) ECAP to report, resolve, and prevent future non-compliance with laws, regulations, permits, and fish kill.
- b) In the event of non-compliance, WSDOT will undertake corrective actions. WSDOT corrective actions may include stopping work, improved BMPs, additional training, providing improved information (e.g., sensitive area maps) to WSDOT personnel, and conducting additional performance assessments.
- c) While WDFW must defer to WSDOT to conduct voluntary compliance, WDFW reserves the right to take any enforcement action that may be appropriate.
- d) In the event that damage to fish life or fish habitat occurs as a result of work on WSDOT projects, WSDOT must consult with WDFW to develop approved plans to repair damage and must complete repair projects as required by WDFW.
  - i. WSDOT is responsible for damage and restoration of fish life.
  - ii. WSDOT is responsible for working with the contractor to repair damage done to fish life and to prevent future violations.
  - iii. Work to repair damage will likely require an additional HPA or HPA modification.
  - iv. Efforts should be made to resolve violations and complete mitigation prior to project completion.
  - v. WSDOT must provide trained personnel to ensure compliance with all HPA provisions, and the appropriate use of the ECAP system.

## **B. Guidance for Implementing the Hydraulic Code Rules**

On November 7<sup>th</sup>, 2014, the Fish and Wildlife Commission adopted a comprehensive update of the state's Hydraulic Code rules. WSDOT and WDFW developed guidance to clarify the intent of certain subsections and to help staff implement the Hydraulic Code on WSDOT projects. A signed copy of the original Guidance for Implementing the Hydraulic Code (WAC 220-660) has been included in Appendix C. Additional guidance from the WSDOT/WDFW Fish Passage Executive Oversight Committee has been incorporated into this section. WSDOT and WDFW will work cooperatively to implement the guidance which has been incorporated in this MOA. If conflict arises, WSDOT and WDFW staff will follow the Conflict Resolution procedures outlined in Section X of this agreement.

### **1. Fish habitat**

WAC 220-660-030 Definitions.

(51) "Fish habitat" or "habitat that supports fish life" means habitat, which is used by fish life at any life stage at any time of the year including potential habitat likely to be used by fish life, which could reasonably be recovered by restoration or management and includes off-channel habitat.

*Clarifying information:*

WSDOT has expressed concern that the new definition could trigger a requirement to replace or retrofit existing structures in order to restore habitat that has been lost due to prior development when performing WSDOT maintenance activities. WDFW will honor this MOA and Appendix A which identifies mitigation that WSDOT can and cannot do for certain WSDOT activities.

When WSDOT improvement or preservation projects trigger the need to obtain an HPA, WDFW will not authorize WSDOT to create the loss of potential fish habitat (as defined above) without requiring mitigation. For example, WDFW would not authorize the loss (or would require mitigation for the loss) of potential fish habitat above a fish passage barrier in cases when it is reasonable to assume that the barrier would someday be removed and the habitat restored. In situations where existing conditions do not support fish life due to previously lost habitat, WSDOT and WDFW will work together to determine when it is reasonable to assume that recovery or restoration efforts are likely to occur.

### **2. Maintenance mitigation**

WAC 220-660-030 Definitions.

(86) "Maintenance" means repairing, remodeling, or making minor alterations to a facility or project to keep the facility or project in properly functioning and safe condition.

(123) "Rehabilitation" means major work required to restore the integrity of a structurally deficient or functionally obsolete structure. This can include partial replacement of a structure.

(124) "Replacement" means complete removal of an existing structure and construction of a substitute structure in the same general location.

WAC 220-660-080 Mitigation requirements for hydraulic projects.

(3)(g) All maintenance work must comply with the applicable common technical construction provisions and project-specific and site-specific construction provisions. Maintenance work that rehabilitates and replaces a structure must also comply with the applicable common technical design provisions.

(4)(h) Maintenance on a legally constructed structure does not require compensatory mitigation unless:

(i) The maintenance causes a new loss of habitat function, value, or quantity by habitat type that is not associated with the original construction of the structure; or (ii) The maintenance work does not comply with subsection (3)(g) in this section.

Clarifying information:

WDFW will honor this MOA as it identifies what are considered WSDOT maintenance activities and lists mitigation that WSDOT can and cannot do for maintenance work (see Maintenance Mitigation tables in Appendix A).

### **3. Stream bank protection and lake shoreline stabilization**

WAC 220-660-130 Stream bank protection and lake shoreline stabilization.

(3)(a) The department may require a person to submit *a qualified professional's rationale* with the HPA application for a new structure or a replacement structure extending waterward of the existing structure or bankline. This requirement does not apply to projects that address constriction, drop/weir scour or other scour caused by an existing structure. The rationale for the proposed technique must include: (i) ...the *level of risk* to existing buildings, roads, or services being threatened by the erosion; (ii) Technical rationale specific to the project design, such as a *reach and site assessment*...

(3)(c) The department may require a person to incorporate large woody material or native vegetation into the design of the structures as partial or complete mitigation...

Clarifying information:

Small erosion repair within the roadway prism and scour repair at a culvert inlet would not trigger the need to comply with the above provisions. Additionally, WSDOT's current practices for analyzing stream processes when designing new bank protection structures will satisfy this requirement.

### **4. Dredging**

WAC 220-660-170 Dredging in freshwater areas.

(3)(c) The department may require a pre-project channel survey or assessment by a qualified professional to determine the root causes of a sediment deposition problem and the potential channel changes that may result from dredging...

Clarifying information:

This rule update establishes new requirements when dredging in large rivers for the purpose of navigation and flood prevention. Minor sediment removal, such as that which is allowed under WSDOT's Channelized Stream GHPA (June 2014) and Culvert Maintenance GHPA (June 2014) will not trigger the need to comply with the

above provision. WDFW intends to work with stakeholders in the 2015-2017 timeframe to develop a separate chapter for sediment removal from small streams.

## **5. Flood plain, channel migration & design requirements of water crossing structures**

WAC 220-660-190 Water crossing structures.

(2) Fish Life Concerns: (a) A person must design water crossing structures in fish-bearing streams to allow fish to move freely through them *at all flows* when fish are expected to move. All water crossings must retain upstream and downstream connection in order to *maintain expected channel processes*. These processes include the movement and distribution of wood and sediment *and shifting channel patterns*. Water crossings that are too small in relation to the stream can block or alter these processes, although some encroachment of the *flood plain and channel migration zone* will be approved when it can be shown that such encroachment has minimal impacts to fish life and habitat that supports fish life.

(4) Bridge Design: ... (c) A bridge over a watercourse with an active flood plain must be designed to prevent a significant increase in the main channel average velocity (a measure of encroachment). The bridge is defined as the main bridge span(s) plus flood plain relief structures and approach road overtopping. This velocity must be determined at the 100-year flood flow or the design flood flow approved by the department. The significance threshold should be determined by considering bed coarsening, scour, backwater, flood plain flow, and related biological and geomorphological effects typically evaluated in a reach analysis.

### Clarifying information:

This rule update is not intended to imply that water crossing structures must fully span the flood plain or fully accommodate channel migration through the life of the structure. WDFW will allow encroachment into the flood plain and channel migration zone.

If WSDOT's new structure is not significantly increasing the main channel average velocity compared to existing conditions, then no compensatory mitigation would be required. If the new structure significantly increases the main channel velocity above existing conditions in such a way that it significantly impacts fish habitat, then WSDOT would need to mitigate. Furthermore, WDFW does not intend to require compliance with any specific design criteria as long as the final design does not measurably impact fish life. Appropriate methods to design water crossing structures are available in the department's *Water Crossing Design Guidelines (WCDG)*, or other published manuals and guidelines. A list of approved manuals and guidelines is on the department's [web site](#). WDFW will accept water crossing designs that are compliant with Federal Highway and AASHTO guidelines when they are applied correctly for the protection of fish life.

WSDOT and FHWA bridge design methodologies can be used to design a crossing that is adequate for the protection of fish life. The following directions shall be used:

### Bridge Definition

WSDOT will determine whether a water crossing structure is designed as a bridge or culvert based on FHWA bridge definition (i.e., opening measured along the center of the roadway of more than 20 feet). WDFW will determine the appropriate regulatory HPA criteria that will apply to the design.<sup>1</sup> Structures that meet the FHWA bridge definition and comply with the provisions under the Bridge Design section 4 of WAC 220-660-190, are assumed to meet the processes and functions of a bridge and will be permitted as bridges; they will not be considered alternative designs due to this classification.

### Structure Span

WSDOT will design bridge spans to be consistent with the criteria in WAC 220-660-190 most notably, Permanent Water Crossing Structures – Generally (section 3) and Bridge Design (section 4). These include but are not limited to:

- *Provide unimpeded passage for all species of adult and juvenile fishes (3a)*
- *Prevent significant increase in main channel velocity ... at the 100-year flood flow (4c)*
- *Account for lateral migration expected to occur in the bridge's lifespan (4d)*
- *Minimize the need for scour protection .... and ... specify the size and placement of scour protection so it withstands expected peak flows (4g)*

### Bed material sizing

WSDOT will design bridge crossings with bed material that has similar particle size to the surrounding reach. WSDOT will endeavor to design the channel so *that the median particle size of any bed material placed is (within) approximately 20 % of the median particle size of a reference reach (WAC stream simulation culvert section 6b(vi))*. If that isn't feasible due to site constraints, WSDOT will demonstrate that the proposed channel design will:

- *Maintain expected channel processes; movement and distribution of wood and sediment and shifting channel patterns (2a)*
- *Avoid uncharacteristically coarse bed material (3a)*

### Channel slope

WSDOT will use bridge designs with a channel slope that is stable and that fits within the geomorphic context of the reach to the maximum extent feasible. WSDOT will endeavor to provide for a slope that closely matches the upstream and downstream

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<sup>1</sup> Sites where the stream crossing is particularly long will be carefully examined to ensure that the *expected channel processes are maintained. These ... include movement and distribution of wood and sediment and shifting channel patterns (2a)*. In some cases this may require a span which exceeds the stream simulation formula. See the Water Crossing Design Guidelines for discussion of long crossings (pages 40-41). In general, this applies to sites where the stream length at the crossing is 10 or more times the bankfull width. WSDOT will discuss these cases with WDFW and will document how the design is expected to maintain the expected channel processes.

channel gradient, but is within 25% of the upstream and downstream channel slope as described in the WCDG for stream simulation culverts. If falling within the 25% channel slope isn't feasible, due to site constraints, WSDOT will describe how remedies that address the site constraints were exhausted and will minimize the increase in slope required to address site conditions and demonstrate how the crossing is expected to provide:

- *Similar slope to that of a stable channel in the geomorphic context of the reach (3c(i))*
- *Similar cross section to ...match expected stream measurements(3c(ii))*

#### Regarding monitoring

If a bridge design does not comply with the provisions of sections 2, 3, and 4 of WAC 220-660-190 due to extreme and unusual site conditions or constraints, WSDOT may use the methods found in WAC 220-660-200 (Fish Passage Improvement Structures) which may require monitoring, maintenance and/or mitigation. Otherwise, WDFW is expected to require monitoring for bridge crossings only in unusual or experimental situations where the design includes a unique or previously untested feature.

## **6. Removing existing bridge components**

WAC 220-660-190 Water crossing structures.

(3)Permanent water crossing structures – Generally:

(f) When removing an existing crossing in preparation for a new crossing, a person must remove all the existing components (such as approach fill, foundations, stringers, deck, riprap, guide walls, culverts, and aprons) likely to cause impacts to fish life and the habitat that supports fish life. The department may approve the partial removal of certain components when leaving them has been shown to have no measurable, or minor, impact.

#### Clarifying information:

Removal of existing bridge components, including approach fill, would only be required if existing components are causing measurable impacts to existing fish and existing fish habitat. If there are no measurable impacts, then components can be left in place.

## **7. Stream Simulation in Altered Riverscapes**

### Background

Stream simulation culvert designs are often considered in *natural* channel stream reaches as a means to pass all fish. For example, the consideration of bankfull width, and thus culvert dimensions, is best considered in unaltered reaches which have evolved with basin-specific precipitation and channel dynamics. These reaches are commonly at equilibrium with the forces that shape the channel. However, in highly altered stream systems, stream simulation principles may equally apply. In a permanently altered (artificially constrained) riverscape where channel dynamics up- and down-stream are similar to what would exist inside a new culvert repair/replacement, a stream simulation culvert design may be feasible to construct.

The purpose of stream simulation criteria is to mimic natural channel processes inside the culvert such that it resembles and functions as though the culvert itself were not present (or nearly so). Thus, stream simulation designs model upstream and downstream reaches in the culvert designs. In permanently altered and constricted environments, channel dynamics can be equally modelled after upstream and downstream reaches. In essence, the permanently altered environment may have established in-stream equilibrium from which a channel inside the culvert can be designed to mimic. Where certain criteria exist in altered channels, it may be possible to design stream simulation culverts. Under these conditions, the application of stream simulation to altered stream streams is fully consistent with the Water Crossing Design Guidelines (2013) as well as the Design of Road Culverts for Fish Passage (2003).

#### Rationale for applying stream simulation culvert designs in altered stream systems

- Culverts that might otherwise be wider than the artificially constrained channel do not provide additional fish benefits.
- In an altered setting, the stream channel can reach equilibrium just as in an unaltered setting. For the purpose of crossing designs this situation may be considered natural channel even though it may have artificial constraints.
- Those fish that are present in the channel are not expected to be challenged by the stream simulation culvert which looks and performs similarly to the stream they were just swimming through.
- Within limits, these processes and functions can, and are expected to, be unconstrained by a properly designed stream simulation culvert in altered riverscapes:
  - Flood flow conveyance
  - Transport of wood
  - Sediment transport
  - Fish passage
  - Low flow continuity
  - Hydraulic diversity
  - Margin habitat
  - Sediment gradation continuity

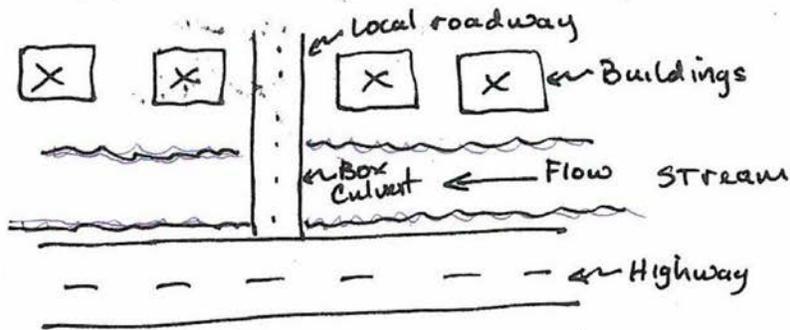
#### Criteria for determining a suitable application of the stream simulation culvert design in altered stream channels

- The channel must be artificially constrained with 'permanent' infrastructure. Permanent infrastructure may include, and is not limited to, buildings, roads, and railroads where there is a very unreasonable prospect for restoring historic channel function and where the channel cannot be suitably relocated within the expected life of a new crossing structure.
- The channel width in the culvert must be no narrower than the up- and down-stream channel BFW and must fully accommodate the 100 year flood with anticipated debris (logs, etc.), or as otherwise described in WAC 220-660-190. In many streams, these criteria may preclude round or arching culvert types (i.e., box culverts may be needed).

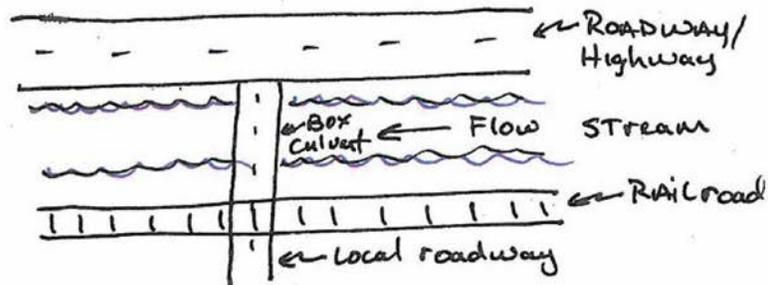
- The stream bed slope must mimic the up and down-stream channel profile (within 25%) and include similarly graded bed material, following the stream simulation guidance criteria.
- The culvert must be countersunk to a depth matching stream simulation criteria guidance.

Examples:

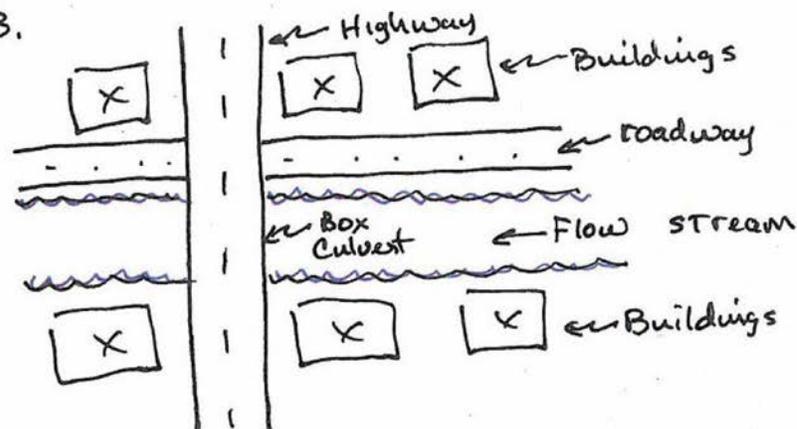
EXAMPLE 1.



Example 2.



Example 3.



## 8. Emergency culvert repairs

WAC 220-660-190 Water crossing structures.

(8) Emergency culvert requirements:

(b) Fish passage must be provided at the times of the year when fish are expected to move. If the culvert design does not provide unimpeded fish passage, a person can use methods found in WAC 220-660-200 (fish passage improvement structures) to pass fish until a culvert is constructed.

Clarifying information:

This rule update is not intended to imply that emergency projects must provide fish passage during the life of the emergency situation. WDFW will, however, expect any temporary structures to pass adult fish during upstream salmon migration if they are blocked. If a water crossing provided fish passage prior to an emergency situation, then WDFW will expect the replacement/repair structure to provide fish passage.

WDFW will expect the emergency repair/replacement culvert to be of a size equal to or greater than the structure that existed prior to the emergency.

## 9. Fish ladders

WAC 220-660-200 Fish passage improvement structures.

(7) Fish ladder operation and maintenance:

(a) If target fish species are present and actively migrating, fish ladders with auxiliary water supply system (AWS) must have enough water available at all stream flows to pass fish safely and efficiently through the fish ladder or the main channel without the need of a fish ladder.

Clarifying information:

This provision is only relevant to facilities where the flow is managed, as in an irrigation diversion, hydropower, or an off-channel fishway and it does not apply to WSDOT owned fishways.

## 10. Roughened channels

WAC 220-660-200 Fish passage improvement structures.

(9) Roughened channel design:

(Included in fish passage improvement structures section rather than in water crossing structures section)

Clarifying information:

This rule update is not intended to preclude the design of Roughened Channels as water crossing structures. In some instances, this approach may be accepted as a superior way of providing fish passage by simulating reach based processes in locations that have been modified by external effects (e.g., urbanization). A roughened channel is an engineered solution to a stream problem that cannot be solved using natural channel design. As a result, the finished project has operational criteria that must be monitored and corrected if they are out of compliance.

## V. Training

Representatives from WDFW and WSDOT (Permit Program Manager) will meet annually during the month of June to identify training opportunities for respective staff.

Training opportunities should ensure contractors, staff, and others have functional knowledge of:

- Ecological and transportation issues,
- WDFW and WSDOT programs, and
- Roles, responsibilities, and methods in terms of fieldwork, technical support, permits, and documentation.

Both agencies will encourage the training of appropriate staff. Training will be funding-dependent and conducted with an adaptive management philosophy with future needs addressed as questions and issues arise during program implementation. Both agencies will integrate cross-training into their existing training programs as appropriate.

## VI. Fish Passage

WSDOT is required to install and maintain all culverts, fishways, and bridges to provide unrestricted fish passage as per RCW 77.57.030. Design of fish barrier correction will be based on the latest version of WDFW's document [Water Crossing Design Guidelines](#) or [other guidance](#) approved by WDFW. By using this design guidance and in coordination with WDFW, it is expected that new highway construction at stream crossings will not result in additional barriers to fish passage. In addition to fish passage, WSDOT may consider passage for other aquatic and terrestrial species when designing crossing structures, but conditions for passage of these species will not be included in an HPA.

WSDOT recognizes that many existing highway culverts are barriers to fish passage and were installed years before we understood and recognized the needs of fish. WSDOT is committed to fixing its fish barrier culverts and does so using a three pronged approach. First, WSDOT fixes many culverts through the construction of highway mobility and safety projects. Second, WSDOT operates an Environmental Retrofit program that funds stand-alone fish barrier removal projects that targets correction of the highest priority culverts that would otherwise not be fixed by a highway construction project anytime in the near future. And third, some limited work on fish passage barrier correction and repair is done as part of road preservation projects.

WSDOT and WDFW formed a cooperative program in 1991, to inventory and assess WSDOT fish passage barriers statewide. WSDOT uses funds from its Highway Construction Program to contract with WDFW to inventory and prioritize for correction fish passage barriers at state highway crossings. WDFW identifies WSDOT culverts that are barriers to fish passage, assesses and quantifies the habitat upstream of each barrier and calculates

the priority index for barriers having a significant habitat gain. WSDOT may use this priority index, among other factors, for the stand-alone culvert retrofit program but this does not apply to culverts fixed as part of highway construction projects. WSDOT and WDFW coordinate on the identification, scoping, design and construction of barrier correction projects. WDFW also evaluates the post construction effectiveness of fish barrier correction projects. Information on WSDOT culvert barriers is published annually by WSDOT in the “WSDOT Fish Passage Performance Report.”

### **WSDOT’s Process for Correction of Fish Passage Barriers**

The following sections outline WSDOT’s three-pronged approach to fixing fish barrier culverts.

#### **1. Culverts fixed through larger transportation construction projects**

Many of WSDOT’s fish barrier culverts are corrected as a component of planned, larger transportation (e.g., safety and mobility) construction projects. Integration of fish passage correction with road project construction is a cost-effective way to accelerate barrier correction and reduce equipment and mobilization costs. The following list outlines the process WSDOT and WDFW uses to identify, select, and correct culvert barriers that WSDOT will fix as part of highway construction projects.

- a) WSDOT Region contacts WSDOT Environmental Services Office (Fish Passage Coordinator) and WDFW Habitat Program early during the transportation project scoping phase to request a list of culvert barriers that occur within the proposed project limits.
- b) WDFW Habitat Program sends the inventory list of barrier culverts to WSDOT and the HB.
- c) As design work continues, WSDOT determines which culverts will be affected by the proposed highway construction work.
- d) If a transportation (safety or mobility) project involves work on a fish barrier culvert that requires an HPA, then WSDOT is required to fix the barrier as part of that project.
- e) If the highway project includes a fish barrier culvert within the project limits, but the culvert does not require an HPA, WSDOT is not required to fix the culvert, but may exercise discretion and fix the barrier on a case-by-case basis depending on the quality and quantity of the habitat gained and cost of the culvert replacement.
- f) In rare cases, WDFW may make an exception if a barrier correction requiring an HPA would provide an extremely minimal gain for fish and require extraordinary high cost. Consideration of this exception would require agreement with WDFW and would not be based on the presence of other human caused barriers in the stream. In this case, it is understood that WSDOT is ultimately responsible to correct the barrier in the future, and will be required to provide mitigation to compensate for the habitat loss resulting from the presence of the barrier until it is corrected.

## **2. Fish Passage Barriers Corrected Through the Stand Alone Fish Passage Retrofit (I-4) Program**

WSDOT's highest priority fish passage barriers are fixed as stand-alone projects and funded through WSDOT's I-4 Environmental Retrofit funding category. Stand-alone fish barrier removal projects are prioritized to target sequential correction of barriers that have the largest gains in fish habitat and the greatest production benefits for both anadromous and resident fish species.

WSDOT prepares a prioritized list of fish passage projects (called the Ten Year Plan) to be constructed and evaluated over the next five biennia. The Ten Year Plan is regularly updated as fish barrier correction projects are scoped and correction designs refined.

## **3. Fish Passage Barriers Corrected Through Emergencies**

WSDOT occasionally corrects fish passage barriers with the use of Emergency Funds.

Culverts that are repaired during a Maintenance emergency follow the procedures outlined in Section VIII -*Mitigation for Impacts to Fish Life and Fish Habitat Resulting from Routine and Emergency Maintenance Work* and Section IX – *Work Related to Emergency Culvert and Barrier Replacement*.

## **VII. Chronic Environmental Deficiency (CED) Program**

Chronic environmental deficiencies (CEDs) are locations along the state highway system where recent, frequent, and chronic maintenance and/or repairs to the state transportation infrastructure are causing impacts to fish and/or fish habitat. In 2002, WSDOT established a collaborative process with WDFW to move away from the repetitive repair of infrastructure and instead, concentrate on long-term solutions to optimize environmental improvements for fish and fish habitat, while also addressing transportation infrastructure needs.

WDFW and WSDOT are supportive of, and committed to the overall goals of the CED Program. The program has resulted in correction of some significant problems that may not have otherwise been possible to correct. WDFW and WSDOT recognize that there may be relatively few projects on the CED list that continue to require frequent repairs for which WDFW would typically require compensatory mitigation. WDFW and WSDOT agree to jointly discuss at the administrative level the possibility of accelerating the placement of those projects higher on the priority list for funding and construction.

WSDOT uses funds from its Highway Construction Improvement (I-4) Program to identify CED projects on state highways. A repetitive maintenance project becomes a CED when there are at least three or more repairs or maintenance activities to the highway or associated infrastructure within a ten-year period that are causing impacts to fish and/or fish habitat. WSDOT and WDFW Habitat Program coordinate on the identification, scoping, design, and construction of CED correction projects. WSDOT funds CED correction projects through a stand-alone retrofit program, as part of highway safety and mobility construction projects, and occasionally through other programs such as highway preservation projects or emergency funds.

Annually, at the end of each fiscal year, WSDOT will produce and distribute to WDFW an annual report of the CED Program, including the status and history of funded projects, a description of proposed projects, and details of completed projects.

### **WSDOT's Process for Correction of CEDs**

The following sections outline WSDOT's process for fixing CEDs.

#### **1. Deficiencies fixed through highway safety and mobility construction projects**

WSDOT may correct CED projects as a component of planned Safety and Mobility highway projects. Integration of a CED correction with a road construction project is a cost-effective way to accelerate correction and reduce equipment mobilization costs. The following list outlines the process WSDOT and WDFW use to identify, select, and correct deficiencies that will be fixed as part of highway construction projects.

- a) WSDOT project office contacts WSDOT Environmental Services Office CED Coordinator early during the highway project scoping phase to request a site visit to determine if

there is a potential for the project to have a CED site within the project limits (i.e., typically the project is adjacent to or crosses a river or stream).

- b) CED Coordinator sends the list of identified deficiencies located within or adjacent to the project area to the Project Office, local HB, Habitat Program staff, and the RMEC.
- c) As design work continues, WSDOT project office determines which deficiencies would be corrected during the proposed highway construction work.
- d) A scope of work for a reach analysis is prepared by WSDOT (for those sites that meet the CED criteria) and reviewed by WDFW.
- e) The reach analysis is then conducted by WSDOT technical staff and, upon completion, reviewed by WDFW Habitat Program.
- f) WSDOT project office will work with CED Coordinator to develop the CED correction design.
- g) WSDOT and WDFW coordinate on design and construction review.

## **2. CEDs Corrected Through the Stand Alone Retrofit (I-4) Program**

WSDOT's CED stand-alone ecological retrofit program targets correction of the highest priority deficiencies that would otherwise not be fixed by a highway construction project anytime in the near future. Project scoping of CED stand-alone deficiency projects is a multi-phased process that is led by the WSDOT's CED Coordinator and carried out by WSDOT technical staff (e.g., hydrology, engineering and biology), WDFW Habitat Program staff, HBs, WSDOT Region Environmental staff, and Region Project Office staff. The I-4 CED process involves close coordination between WSDOT and WDFW.

- a) Candidate CED sites are nominated by WSDOT, WDFW, Tribes or others. Each nomination is screened by WSDOT to determine if the site meets the CED program criteria. To qualify two factors must be present: (1) adverse habitat conditions related to fish or fish habitat are associated with repetitive repairs to WSDOT infrastructure, and (2) the infrastructure has been repaired and/or maintained at least three times within the last 10 years. Exceptions to requirement (2) can be made by mutual agreement.
- b) A scope of work for a reach analysis is prepared by WSDOT (for those sites that meet the CED criteria) and reviewed by WDFW.
- c) The reach analysis is then conducted by WSDOT technical staff and upon completion reviewed by WDFW Habitat Program.
- d) A Priority Index (PI) is assigned to each CED after completion of the Reach Analysis
- e) CED Coordinator schedules a pre-scoping meeting on site for all stakeholders. Outcome of the meeting is completion of a stakeholder concurrence form.
- f) Upon signing of concurrence form the final reach analysis is forwarded to WSDOT region for project development, programming, cost estimates and scheduling.
- g) Funding is received and project gets assigned to a WSDOT project office.

- h) Project constructed with continual oversight from CED Coordinator and WDFW.
- i) Project office conducts effectiveness monitoring measured through reduction in maintenance

### **3. CEDs corrected through Emergencies**

CED projects are occasionally fixed through use of state or federal emergency dollars.

## VIII. Mitigation for Impacts to Fish Life and Fish Habitat Resulting From Routine and Emergency Maintenance Work

WSDOT and WDFW agree to the following when conditioning HPAs for routine (scheduled), unscheduled and emergency maintenance work:

1. HPA conditions requiring mitigation will be consistent with WAC 220-660-030(100) "Mitigation" and the definitions included within this agreement.
2. WSDOT will incorporate BMPs for avoiding and minimizing impacts into all maintenance activities. In most instances, measures to avoid and minimize impacts to fish life will be adequate mitigation for maintenance work. WSDOT will apply avoidance and minimization measures into maintenance activities following the *Regional Road Maintenance ESA Program Guidelines* or as directed in the HPA. Column 3 of the Table in Appendix A identifies many of the avoidance and minimization measures that may be appropriately applied to the listed maintenance activities in order to protect fish life.
3. In relatively infrequent instances, WDFW may condition an HPA to require compensatory mitigation for maintenance activities for which measures to avoid, minimize and rectify impacts do not sufficiently mitigate impacts to fish life. Column 4 of the Table in Appendix A identifies many types of compensatory mitigation that may be applied to certain maintenance activities. HBs proposing compensatory mitigation for maintenance activities will first consult their RHPM and the Habitat Program at WDFW Headquarters. When WDFW determines that compensatory mitigation is required for a maintenance activity (e.g., Appendix A Mitigation Table Column 4), compensatory mitigation will be applied as follows, in sequential order:
  - a) **Defer to Existing CED Project:** If the maintenance activity occurs on a structure or facility that is funded under the I-4 CED Program, defer the compensatory mitigation to the CED project. The HPA will be conditioned with a note that the mitigation will be completed through the CED project.
  - b) **Defer to CED Project in Watershed:** For maintenance work occurring on a structure or facility that is located within the same Water Resource Inventory Area (WRIA) as a project funded under the CED program, WDFW will consider whether the compensatory mitigation for the maintenance activity can be deferred to that CED project. WDFW will consider the value of the CED project in relation to the compensatory mitigation triggered by the maintenance activity. If WDFW deems that this type of compensatory mitigation is appropriate, the HPA for the maintenance activity will be conditioned with a note that the mitigation will be completed through an off-site project listed in CED program.
  - c) **Defer to New Project Added to CED List:** If the options listed above in a and b cannot be implemented, the WDFW will coordinate with WSDOT's CED Program Manager to determine whether a new project should be added to the I-4 CED Program to

cover the compensatory mitigation of the maintenance activity. WDFW and WSDOT will consider whether the compensatory mitigation needed for the maintenance activity is critical enough that it warrants listing on the CED program even if it does not meet the CED project criteria of three repairs in 10 years. If the WDFW and WSDOT agree to add a new project to the CED program list, the HPA will be conditioned with a note that the mitigation will be completed through the new CED project.

- d) Elevate to WDFW Habitat Program and WSDOT Environmental Services Office for Resolution: If the options listed above in a-c cannot be implemented, the managers within the WDFW Habitat Program and WSDOT Environmental Services Office will consult to determine how the compensatory mitigation for the maintenance activity will be addressed. Options for consideration may include exploring whether there are other funded WSDOT projects in the same WRIA that could be expanded upon to provide the compensatory mitigation of the maintenance activity or to fund the mitigation through an existing program budget, such as the I-4 Environmental Retrofits/CED Program or Ferries improvement and preservation projects. Other options may also be considered. The final decision of the managers will be included as a condition of the HPA for the maintenance activity.

## **IX. Work Related To Emergency Culvert & Barrier Replacement**

Work involving culvert and barrier replacement shall be consistent with the following Statement of Principles Regarding Barnes Creek and Other WSDOT Culvert/Barrier Replacement Work. The original statement is included as Appendix B for historical reference:

1. Replacement or lengthening of a culvert or other barrier, whether pursuant to an emergency or otherwise, is ordinarily not “maintenance” for purposes of WDFW fish passage requirements, and ordinarily requires that the replacement culvert or barrier meet current fish passage requirements as a condition of the HPA. Replacement means replacing the entire culvert or slip-lining the entire culvert. However, if WSDOT takes some action that is less than replacement or lengthening in the course of a repair, the life of that culvert is ordinarily not over, and the HPA for the repair or maintenance work associated with that existing culvert will ordinarily not require that the existing culvert be replaced or upgraded to meet current fish passage requirements.

If there is a partial culvert replacement that is followed by a subsequent project(s) that replaces the remainder of the culvert within 10 years, the culvert must meet current fish passage or alternative mitigation requirements and those requirements will be included in the HPA for the subsequent project.

2. WDFW has some discretion regarding fish passage requirements, but cannot relieve the barrier owner of the obligation to provide fish passage when legally required.

3. WDFW may defer enforcement of fish passage requirements when WDFW concludes that compensatory mitigation in lieu of providing for immediate fish passage at the culvert or barrier will be more beneficial to fish life. Given that the conditions in an HPA must provide proper protection of fish life and must be reasonable and in proportion to the impacts of the proposed work, when a culvert or barrier is replaced, if providing for fish passage will produce minimal benefits to fish life relative to the cost of such work, WDFW and WSDOT staff will carefully consider alternatives for compensatory mitigation that may be more beneficial for fish life. In making these decisions, WDFW will consult with WSDOT to determine whether fish passage requirements can be met.

During emergency culvert replacement, the consultation will occur before the emergency HPA is issued. In those situations where fish passage requirements can be immediately achieved as part of the emergency culvert replacement, the emergency HPA will be so conditioned. In those situations where fish passage requirements cannot be achieved as part of the emergency culvert replacement, the HPA will require that a fish passage retrofit or compensatory mitigation acceptable to WDFW in lieu of such retrofit be conducted as a follow-up action to the emergency response.

In the cases where fish passage cannot be provided during the course of the emergency response, regulatory staff and fish passage program staff from both WSDOT and WDFW will jointly conduct a follow up review to determine whether a fish passage retrofit or compensatory mitigation is the most appropriate course of action. The follow-up review will be conducted within thirty days of issuance of the emergency HPA in the event that the habitat has been assessed using current WDFW protocol, and will be conducted within sixty days of issuance of the emergency HPA in the event that the habitat has not been assessed using current WDFW protocol. The protocol for the assessment is set forth in the Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual.

4. Compensatory mitigation that is provided for deferring enforcement of an obligation to correct an on-site barrier may be in the form of on-site or off-site mitigation, restoration or enhancement work. WDFW prefers on-site mitigation work, but may approve off-site work if greater resource benefits would be realized. When evaluating compensatory mitigation alternatives, the mitigation should compensate for the future habitat loss measured from the date of installation of the replacement culvert that does not comply with fish passage requirements to the date that the culvert or barrier is corrected. Mitigation requirements will compensate for fish habitat lost upstream from the WSDOT culvert to the following locations:
  - a) To the next culvert that does not meet WDFW fish passage requirements and that is not scheduled to be retrofitted to meet WDFW fish passage requirements in the next 10 years, or
  - b) If subparagraph a. does not apply, to the first natural barrier blocking fish passage, or
  - c) If neither subparagraphs a. nor b. apply, to the end of upstream fish habitat.

Preference shall be given to the selection of mitigation projects that have demonstrated success rates and are self-sustaining.

5. If continued maintenance of the mitigation is necessary to derive the continued benefit for fish life, WSDOT will be responsible for such maintenance, and the mitigation agreement will specify who will conduct such maintenance. If the mitigation site is on WSDOT property, WSDOT will perform the maintenance. If the mitigation site is not on WSDOT property, the agencies will attempt to reach agreement on alternative arrangements for on-going maintenance.
6. In evaluating whether to accept compensatory mitigation in lieu of requiring immediate fish passage as a condition of an HPA, WDFW and WSDOT will take into consideration the projects, priorities, schedules, and budgets for the I-4 fish passage retrofit program.
7. WDFW and WSDOT recognize that there may be circumstances in which WDFW is unwilling to accept alternative compensatory mitigation in lieu of replacement of a culvert or barrier with a fish passable structure or there may be circumstances in which WSDOT disagrees with WDFW's imposition of a requirement for fish passage. The agencies each reserve the right to disagree in such circumstances, and to assert their respective positions. However, the agencies hope that by setting forth the principles above, such disagreements will be avoided.

## **Additional Considerations**

When there is an immediate threat to life, the public, private property, or of environmental degradation, a culvert may be replaced with one that is the same size or larger than the existing one. If the emergency crossing did not have a culvert or the size is not known, the emergency culvert should be large enough to safely pass the 100-year flood event with consideration for debris and sediment. In extreme circumstances, WDFW may approve the use of any available culvert.

During emergency culvert replacement WSDOT must provide adult salmon passage at the times of the year when salmon are migrating upstream to spawn unless WDFW defers enforcement of this requirement. WSDOT can use methods found in WAC 220-660-200 (fish passage improvement structures) to pass fish until a passable culvert is constructed.

## **X. Conflict Resolution**

It is expected that conflicts will be resolved at the field level in a cooperative and professional manner.

When issues associated with a WSDOT-proposed hydraulic project cannot be resolved at the local level, personnel from either agency may request that the WDFW Habitat Protection Division Manager mediate discussions, or may proceed up their agency chain-of-command to resolve them before an HPA is issued or denied. If mediation or chain-of-command discussion is successful in resolving the issues, WDFW and WSDOT must implement any agreements reached. If agreement is not reached, WDFW will issue or deny the HPA, as appropriate. WSDOT may request an informal appeal, per WAC 220-660-460 with WDFW in writing within 30 days of the issuance or denial of an HPA for that project. Should informal appeal fail to resolve the dispute, WSDOT may request a formal appeal of the issuance or denial of the HPA, per WAC 220-660-470.

## **XI. Duration of MOA**

This MOA becomes effective upon signature by both parties and remains in effect until:

- Either party terminates the agreement with 60 days written notice to the other party, or
- Both parties sign a new MOA.

The conditions of this MOA may also be reassessed at any time, including when:

- A condition or section of this MOA is found to be ineffective, or
- The workload for either party under this MOA becomes problematic.
- A change in statutes or rules.

Either agency may propose changes at any time by supplying a copy of the proposed changes to the other agency for review. The agencies must meet and discuss proposed revisions within 60 days. No revision to this MOA is valid except by written amendment signed by both parties.

# Signatures

Memorandum of Agreement  
Washington State Department of Fish and Wildlife  
Washington State Department of Transportation

DIRECTOR  
ENVIRONMENTAL SERVICES OFFICE  
Department of Transportation

Date: 7/29/16

CONTRACTS AND PURCHASING  
MANAGER  
TECHNOLOGY AND FINANCIAL  
MANAGEMENT  
Department of Fish and Wildlife

Date: 7/26/16

# Appendix A

## Maintenance Mitigation Tables (Applies to MOA Section VIII, #2 and #3)

<i>Maintenance Activity</i>	<i>Potential Impacts</i>	<i>Potential Mitigation WSDOT Maintenance Program Can Do</i>	<i>Potential Mitigation WSDOT Cannot Do and Will Require Deferral and Special Funding Per Section VIII</i>
<p><b><i>Culvert Repair / Fix</i></b> (Bent culvert ends, sinkholes, repairing protective armoring, spall repair, and splash pads, and replacing eroded fill material.)</p>	<ul style="list-style-type: none"> <li>• Extending the life of a structure.</li> <li>• Fish passage               <ul style="list-style-type: none"> <li>○ Long term blockage</li> <li>○ Temporary migration delay</li> </ul> </li> <li>• Changed hydraulics (in response to watershed changes)</li> <li>• Perpetuation of depressed baseline conditions               <ul style="list-style-type: none"> <li>○ Channel simplification</li> <li>○ Undersized for current watershed hydrology</li> </ul> </li> <li>• Direct loss of riparian habitat due to temporary work areas</li> <li>• In channel loss of aquatic habitat due to footprint change.</li> <li>• Redd scour</li> <li>• Direct fish impacts               <ul style="list-style-type: none"> <li>○ Stranding</li> <li>○ Harm, harass, etc.</li> </ul> </li> <li>• Water Quality Impacts</li> </ul>	<ul style="list-style-type: none"> <li>• GHPA for culvert maintenance</li> <li>• Woody debris placements (non-engineered/not needing a corps permit)—Design based on HB recommendation.</li> <li>• Fish moving / exclusion</li> <li>• Temporary by-pass</li> <li>• Temporary Erosion and Sediment Control (TESC)</li> <li>• Riparian planting</li> <li>• Timing of work</li> <li>• Equipment limitations</li> <li>• Water quality provisions</li> <li>• Notification requirements</li> <li>• Annual Reporting for General Hydraulic Project Approvals (GHPA)</li> <li>• Spawning gravel above Ordinary High Water Line (OHWL).</li> <li>• Timed/staged ramp-down release of backed-up water.</li> </ul>	<ul style="list-style-type: none"> <li>• Woody debris placements involving engineering and/or placement of backfill<sup>1,2,3</sup></li> <li>• Grade control structure new<sup>1,2,3</sup></li> <li>• Spawning gravel below OHWL<sup>1</sup></li> <li>• Structural upgrade/Betterment<sup>1,2,3</sup> <ul style="list-style-type: none"> <li>○ Requirement to meet 100 yr. flood event</li> <li>○ Fish passage</li> <li>○ Double pipe to Single</li> </ul> </li> <li>• Monitoring of fish life and/or habitat<sup>3</sup></li> <li>• Perpetual maintenance of mitigation structure</li> <li>• Mitigation off of Right-of-Way<sup>4</sup></li> </ul>

<sup>1</sup> Requires a Corps permit  
<sup>2</sup> New engineering/design required  
<sup>3</sup> Lack of resources and expertise  
<sup>4</sup> Liability; risk; common practice

*Maintenance Activity*

*Potential Impacts*

*Potential Mitigation WSDOT  
Maintenance Program Can  
Do*

*Potential Mitigation WSDOT  
Cannot Do and Will Require  
Deferral and Special Funding  
Per Section VIII*

**Culvert Cleaning**

(May include but not limited to vactoring, jetting, mechanical and manual, and rodding).

- Extending the life of a structure.
- Fish passage
  - Long term blockage
  - Temporary migration delay
- Perpetuation of depressed baseline conditions
  - Channel simplification
  - Undersized for current watershed hydrology
- Direct loss of riparian habitat due to temporary work areas
- Redd scour
- Direct fish impacts
  - Stranding
  - Harm, harass, etc.
- Water Quality Impacts
- Loss of coarse/fine sediments & wood.
- Temporary dewatering of upstream of work area due to sump.

- GHPA for culvert maintenance
- Woody debris placements (non-engineered/not needing a corps permit)—Design based on HB recommendation.
- Fish moving / exclusion
- Temporary by-pass
- TESC
- Timing of work
- Equipment limitations
- Water quality provisions
- Notification requirements
- Annual Reporting for GHPAs
- Dig temporary low-flow channel to address temporary sump dewatering.
- Spawning gravel above OHWL.
- Timed/staged ramp-down release of backed-up water.

- Woody debris placements involving engineering and/or placement of backfill<sup>1,2,3</sup>
- Grade control structure new<sup>1,2,3</sup>
- Spawning gravel below OHWL<sup>1</sup>
- Structural upgrade/Betterment<sup>1,2,3</sup>
  - Requirement to meet 100 yr. flood event
  - Fish passage
  - Double pipe to Single
- Monitoring of fish life and/or habitat<sup>3</sup>
- Perpetual maintenance of mitigation structure
- Mitigation off of Right-of-Way<sup>4</sup>

<sup>1</sup> Requires a Corps permit

<sup>2</sup> New engineering/design required

<sup>3</sup> Lack of resources and expertise

<sup>4</sup> Liability; risk; common practice

*Maintenance Activity*

*Potential Impacts*

*Potential Mitigation WSDOT Maintenance Program Can Do*

*Potential Mitigation WSDOT Cannot Do and Will Require Deferral and Special Funding Per Section VIII*

**Channel Cleaning**

- Extending the life of a structure.
- Fish passage
  - Long term blockage
  - Temporary migration delay
- Changed hydraulics (in response to watershed changes)
- Perpetuation of depressed baseline conditions
  - Channel simplification,
  - Undersized for current watershed hydrology
- Direct loss of riparian habitat due to temporary work areas
- In channel loss of aquatic habitat due to footprint change.
- Redd scour
- Direct fish impacts
  - Stranding
  - Harm, harass, etc.
- Water Quality Impacts
- Loss of coarse/fine sediments & wood.

- GHPA for channelized stream maintenance
- Maintenance of existing mitigation structures (e.g. maintenance of fishways that were constructed as part of mitigation)
- Fish moving and exclusion
- Temporary by-pass
- TESC
- Riparian planting
- Timing of work
- Equipment limitations
- Water quality provisions
- Notification requirements
- Woody debris placements (non-engineered/not needing a corps permit)—Design based on HB recommendation.
- Annual Reporting for GHPAs
- Short-term reporting for individual HPAs (e.g. fish exclusion or quantity of fill removed)

- Timed/staged ramp-down release of backed-up water.
- Woody debris placements involving engineering and/or placement of backfill<sup>1,2,3</sup>
- Grade control structure new<sup>1,2,3</sup>
- Spawning gravel below OHWL<sup>1</sup>
- Structural upgrade/Betterment<sup>1,2,3</sup>
  - Requirement to meet 100 yr. flood event
- Monitoring of fish life and/or habitat<sup>3</sup>
- Studies and Surveys<sup>3</sup>
- Mitigation off the Right-of-Way<sup>4</sup>

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<sup>1</sup> Requires a Corps permit

<sup>2</sup> New engineering/design required

<sup>3</sup> Lack of resources and expertise

<sup>4</sup> Liability; risk; common practice

*Maintenance Activity*

**Slide and Slope Repairs**

(May include but not limited to slide/rock debris containment, rip rap and cribbing repair, and shoulder washout repair)

*Potential Impacts*

- Extending the life of a structure.
- Changed hydraulics
- Perpetuation of depressed baseline conditions
  - Channel simplification
- Direct loss of riparian habitat due to temporary work areas
- In channel loss of aquatic habitat due to footprint change.
- Direct fish impacts
  - Harm, harass, etc.
- Water Quality Impacts
- Loss of wood.

*Potential Mitigation WSDOT Maintenance Program Can Do*

- Maintenance of existing mitigation structures (e.g. maintenance of fishways that were constructed as part of mitigation)
- Fish moving / exclusion
- Temporary by-pass
- TESC
- Riparian planting
- Timing of work
- Equipment limitations
- Water quality provisions
- Notification requirements
- Woody debris placements (non-engineered/not needing a corps permit)—Design based on HB recommendation.
- Annual Reporting for GHPAs
- Short term reporting for individual HPAs (e.g. fish exclusion or quantity of fill removed)
- Spawning gravel above OHWL
- Timed/staged ramp-down release of backed-up water.

*Potential Mitigation WSDOT Cannot Do and Will Require Deferral and Special Funding Per Section VIII*

- Woody debris placements involving engineering and/or placement of backfill<sup>1,2,3</sup>
- Grade control structure new<sup>1,2,3</sup>
- Spawning gravel below OHWL<sup>1</sup>
- Structural upgrade/betterment<sup>1,2,3</sup>
  - Requirement to meet 100 yr. flood event
- Monitoring of fish life and/or habitat<sup>3</sup>
- Studies and Surveys<sup>3</sup>
- Mitigation off the Right-of-Way<sup>4</sup>

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<sup>1</sup> Requires a Corps permit  
<sup>2</sup> New engineering/design required  
<sup>3</sup> Lack of resources and expertise  
<sup>4</sup> Liability; risk; common practice

*Maintenance Activity*

**Streambank Stabilization**

(Emergency work is limited to stabilization of the right-of-way structure).

*Potential Impacts*

- Extending the life of a structure.
- Changed hydraulics
- Perpetuation of depressed baseline conditions
  - Channel simplification
- Direct loss of riparian habitat due to temporary work areas
- In channel loss of aquatic habitat due to footprint change.
- Direct fish impacts
  - Harm, harass, etc.
- Water Quality Impacts
- Loss of coarse/fine sediments & wood.

*Potential Mitigation WSDOT Maintenance Program Can Do*

- Maintenance of existing mitigation structures (e.g. maintenance of fishways that were constructed as part of mitigation)
- Fish moving / exclusion
- Temporary by-pass
- TESC
- Riparian planting
- Timing of work
- Equipment limitations
- Water quality provisions
- Notification requirements
- Woody debris placements (non-engineered/not needing a corps permit)—Design based on HB recommendation.
- Short-term reporting for individual HPAs (e.g. fish exclusion or quantity of fill removed)
- Spawning gravel above OHWL
- Timed/staged ramp-down release of backed-up water.

*Potential Mitigation WSDOT Cannot Do and Will Require Deferral and Special Funding Per Section VIII*

- Woody debris placement involving engineering and/or placement of backfills<sup>1,2,3</sup>
- Grade control structure new<sup>1,2,3</sup>
- Spawning gravel below OHWL<sup>1</sup>
- Structural upgrade/betterment<sup>1,2,3</sup>
  - Requirement to meet 100 yr. flood event
- Monitoring of fish life and/or habitat<sup>3</sup>
- Studies and Surveys<sup>3</sup>
- Mitigation off the Right-of-Way<sup>4</sup>
- Perpetual maintenance of mitigation structure

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<sup>1</sup> Requires a Corps permit

<sup>2</sup> New engineering/design required

<sup>3</sup> Lack of resources and expertise

<sup>4</sup> Liability; risk; common practice

*Maintenance Activity*

***Rip rap and cribbing repairs***

To existing structures (e.g. repair of scour around bridge pier or abutment).

*Potential Impacts*

- Extending the life of a structure.
- Changed hydraulics
- Perpetuation of depressed baseline conditions
  - Channel simplification
- Direct loss of riparian habitat due to temporary work areas
- In channel loss of aquatic habitat due to footprint change.
- Direct fish impacts
  - Harm, harass, etc.
- Water Quality Impacts
- Loss of coarse/fine sediments & wood.

*Potential Mitigation WSDOT Maintenance Program Can Do*

- Maintenance of existing mitigation structures (e.g. maintenance of fishways that were constructed as part of mitigation)
- Fish moving / exclusion
- Temporary by-pass
- TESC
- Riparian planting
- Timing of work
- Equipment limitations
- Water quality provisions
- Notification requirements
- Woody debris placements (non-engineered/not needing a corps permit)—Design based on HB recommendation.
- Short-term reporting for individual HPAs (e.g. fish exclusion or quantity of fill removed)
- Spawning gravel above OHWL
- Timed/staged ramp-down release of backed-up water.

*Potential Mitigation WSDOT Cannot Do and Will Require Deferral and Special Funding Per Section VIII*

- Woody debris placements involving engineering and/or placement of backfills<sup>1,2,3</sup>
- Grade control structure new<sup>1,2,3</sup>
- Spawning gravel below OHWL<sup>1</sup>
- Structural upgrade/Betterment<sup>1,2,3</sup>
  - Requirement to meet 100 yr. flood event
- Monitoring of fish life and/or habitat<sup>3</sup>
- Studies and Surveys<sup>3</sup>
- Mitigation off the Right-of-Way<sup>4</sup>
- Perpetual maintenance of mitigation structure

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<sup>1</sup> Requires a Corps permit

<sup>2</sup> New engineering/design required

<sup>3</sup> Lack of resources and expertise

<sup>4</sup> Liability; risk; common practice

*Maintenance Activity*

**Minor culvert extension and sump digging and maintenance**

(minor is defined as an activity that has little to no potential for changing the hydraulics or habitat structure of the system)

*Potential Impacts*

- Extending the life of a structure.
- Fish passage
  - Long term blockage
  - Temporary migration delay
- Changed hydraulics (in response to watershed changes)
- Perpetuation of depressed baseline conditions
  - Channel simplification
  - Undersized for current watershed hydrology
- Direct loss of riparian habitat due to temporary work areas
- In channel loss of aquatic habitat due to footprint change.
- Redd scour
- Direct fish impacts
  - Stranding
  - Harm, harass, etc.
- Water Quality Impacts
- Loss of coarse/fine sediments & wood.
- Temporary dewatering of upstream of work area due to sump.

*Potential Mitigation WSDOT Maintenance Program Can Do*

- Maintenance of existing mitigation structures (e.g. maintenance of fishways that were constructed as part of mitigation)
- Fish moving / exclusion
- Temporary by-pass
- TESC
- Riparian planting
- Timing of work
- Equipment limitations
- Water quality provisions
- Notification requirements
- Woody debris placements (non-engineered/not needing a corps permit)—Design based on HB recommendation.
- Short-term reporting for individual HPAs (e.g. fish exclusion or quantity of fill removed)
- Spawning gravel above OHWL
- Timed/staged ramp-down release of backed-up water.

*Potential Mitigation WSDOT Cannot Do and Will Require Deferral and Special Funding Per Section VIII*

- Woody debris placements involving engineering and/or placement of backfills<sup>1,2,3</sup>
- Grade control structure new<sup>1,2,3</sup>
- Spawning gravel below OHWL<sup>1</sup>
- Structural upgrade/betterment<sup>1,2,3</sup>
  - Requirement to meet 100 yr. flood event
  - Fish passage
- Monitoring of fish life and/or habitat<sup>3</sup>
- Studies and Surveys<sup>3</sup>
- Mitigation off the Right-of-Way<sup>4</sup>

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<sup>1</sup> Requires a Corps permit  
<sup>2</sup> New engineering/design required  
<sup>3</sup> Lack of resources and expertise  
<sup>4</sup> Liability; risk; common practice

## Appendix B

### Statement of Principles Regarding Barnes Creek and Other WSDOT Culvert/Barrier Replacement Work (Applies to Section IX)

During a meeting held on February 23, 2006, John Conrad, WSDOT Assistant Secretary for Engineering and Regional Operations, and Larry Peck, WDFW Deputy Director, committed to the following principles:

1. Replacement or lengthening of a culvert or other barrier, whether pursuant to an emergency or otherwise, is ordinarily not “maintenance” for purposes of WDFW fish passage requirements, and ordinarily requires that the replacement culvert or barrier meet current fish passage requirements as a condition of the HPA. Replacement means replacing the entire culvert or slip-lining the entire culvert. However, if WSDOT takes some action that is less than replacement or lengthening in the course of a repair, the life of that culvert is ordinarily not over, and the HPA for the repair or maintenance work associated with that existing culvert will ordinarily not require that the existing culvert be replaced or upgraded to meet current fish passage requirements.

If there is a partial culvert replacement that is followed by a subsequent project(s) that replaces the remainder of the culvert within 10 years, the culvert must meet current fish passage or alternative mitigation requirements and those requirements will be included in the HPA for the subsequent project.

2. WDFW has some discretion regarding fish passage requirements, but cannot relieve the barrier owner of the obligation to provide fish passage when legally required.
3. WDFW may defer enforcement of fish passage requirements when WDFW concludes that compensatory mitigation in lieu of providing for immediate fish passage at the culvert or barrier will be more beneficial to fish life. Given that the conditions in an HPA must provide proper protection of fish life and must be reasonable and in proportion to the impacts of the proposed work, when a culvert or barrier is replaced, if providing for fish passage will produce minimal benefits to fish life relative to the cost of such work, WDFW and WSDOT staff will carefully consider alternatives for compensatory mitigation that may be more beneficial for fish life. In making these decisions, WDFW will consult with WSDOT to determine whether fish passage requirements can be met.

During emergency culvert replacement, the consultation will occur before the emergency HPA is issued. In those situations where fish passage requirements can be immediately achieved as part of the emergency culvert replacement, the emergency HPA will be so conditioned. In those situations where fish passage requirements cannot be achieved as part of the emergency culvert replacement, the HPA will require that a fish passage retrofit or compensatory mitigation acceptable to WDFW in lieu of such retrofit be conducted as a follow-up action to the emergency response.

In the cases where fish passage cannot be provided during the course of the emergency response, regulatory staff and fish passage program staff from both WSDOT and WDFW will jointly conduct a follow up review to determine whether a fish passage retrofit or compensatory mitigation is the most appropriate course of action. The follow-up review will be conducted within thirty days of issuance of the emergency HPA in the event that the habitat has been assessed using current WDFW protocol, and will be conducted within sixty days of issuance of the emergency HPA in the event that the habitat has not been assessed using current WDFW protocol. The protocol for the assessment is set forth in the Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual.

4. Compensatory mitigation that is provided for deferring enforcement of an obligation to correct an on-site barrier may be in the form of on-site or off-site mitigation, restoration or enhancement work. WDFW prefers on-site mitigation work, but may approve off-site work if greater resource benefits would be realized. When evaluating compensatory mitigation alternatives, the mitigation should compensate for the future habitat loss measured from the date of installation of the replacement culvert that does not comply with fish passage requirements to the date that the culvert or barrier is corrected. Mitigation requirements will compensate for fish habitat lost upstream from the WSDOT culvert to the following locations:
  - a. To the next culvert that does not meet WDFW fish passage requirements and that is not scheduled to be retrofitted to meet WDFW fish passage requirements in the next 10 years, or
  - b. If subparagraph a. does not apply, to the first natural barrier blocking fish passage, or
  - c. If neither subparagraphs a. nor b. apply, to the end of upstream fish habitat.

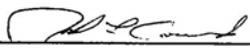
Preference must be given to the selection of mitigation projects that have demonstrated success rates and are self-sustaining.

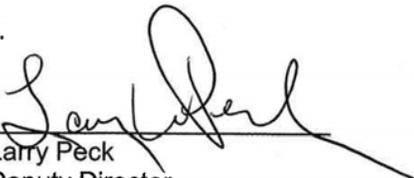
5. If continued maintenance of the mitigation is necessary to derive the continued benefit for fish life, WSDOT will be responsible for such maintenance, and the mitigation agreement will specify who will conduct such maintenance. If the mitigation site is on WSDOT property, WSDOT will perform the maintenance. If the mitigation site is not on WSDOT property, the agencies will attempt to reach agreement on alternative arrangements for on-going maintenance.
6. In evaluating whether to accept compensatory mitigation in lieu of requiring immediate fish passage as a condition of an HPA, WDFW and WSDOT will take into consideration the projects, priorities, schedules, and budgets for the I-4 fish passage retrofit program.
7. WDFW and WSDOT recognize that there may be circumstances in which WDFW is unwilling to accept alternative compensatory mitigation in lieu of replacement of a culvert or barrier with a fish passable structure or there may be circumstances in which WSDOT disagrees with WDFW's imposition of a requirement for fish passage. The agencies each reserve the right to disagree in such circumstances, and to assert their respective positions. However, the agencies hope that by setting forth the principles above, such disagreements will be avoided.

8. WDFW and WSDOT staff shall revise the 2002 MOA between WDFW and WSDOT Construction of Projects in State Waters, consistent with the above principles. Consistent with the MOA, WDFW or WSDOT may withdraw its commitment to these principles upon sixty days written notice to the other party.

In regard to Barnes Creek, WDFW is willing to accept off-site compensatory mitigation consistent with the above principles. WSDOT supports off-site compensatory mitigation of this situation. WDFW and WSDOT staff are directed to re-engage in discussions of alternatives, and to attempt to reach agreement on an appropriate mitigation scope of work by March 27, 2006.

Dated this 27<sup>th</sup> day of April, 2006.

  
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John Conrad  
Assistant Secretary  
Washington State  
Department of Transportation

  
\_\_\_\_\_  
Larry Peck  
Deputy Director  
Washington Department of  
Fish and Wildlife

# Appendix C

## Washington State Department of Transportation (WSDOT) Washington State Department of Fish & Wildlife (WDFW) Guidance for Implementing the Hydraulic Code (WAC 220-660) February 27, 2015

This document clarifies the intent of certain subsections of the Hydraulic Code as updated in 2015 and establishes guidance for WSDOT and WDFW staff in implementing the Hydraulic Code on WSDOT projects. WSDOT and WDFW field staff will work cooperatively to implement this guidance. If conflict arises, WSDOT and WDFW staff will follow the Conflict Resolution procedures outlined in the WDFW and WSDOT Memorandum of Agreement (MOA) concerning the Administration of Hydraulic Projects (2008). WSDOT's Permit Compliance Program Manager will schedule a meeting with WDFW's Habitat Program Manager on an annual basis to track performance of this guidance.

### **1) Fish Habitat**

WAC 220-660-030 Definitions

(50) "Fish habitat" means habitat, which is used by fish life at any life stage at any time of the year including potential habitat likely to be used by fish life, which could reasonably be recovered by restoration or management and includes off-channel habitat.

#### *Clarifying information:*

WSDOT has expressed concern that the new definition could trigger a requirement to replace or retrofit existing structures in order to restore habitat that has been lost due to prior development when performing WSDOT maintenance activities. WDFW will honor the 2008 Memorandum of Agreement between WDFW and WSDOT concerning the administration of hydraulic project approvals. Appendix A of the MOA identifies mitigation that WSDOT can and cannot do for certain WSDOT activities.

When WSDOT improvement or preservation projects trigger the need to obtain a hydraulic project approval, WDFW will not authorize WSDOT to create the loss of potential fish habitat (as defined above) without requiring mitigation. For example, WDFW would not authorize the loss (or would require mitigation for the loss) of potential fish habitat above a fish passage barrier in cases when it is reasonable to assume that the barrier would someday be removed and the habitat restored. In situations where existing conditions do not support fish life due to previously lost habitat, WSDOT and WDFW will work together to determine when it is reasonable to assume that recovery or restoration efforts are likely to occur.

### **2) Maintenance Mitigation**

WAC 220-660-030 Definitions

(85) "Maintenance" means repairing, remodeling, or making minor alterations to a facility or project to keep the facility or project in properly functioning and safe condition.

(120) "Rehabilitation" means major work required to restore the integrity of a structurally deficient or functionally obsolete structure. This can include partial replacement of a structure.

(121) "Replacement" means complete removal of an existing structure and construction of a substitute structure in the same general location.

## WAC 220-660-080 Mitigation Requirements

(4)(h) Maintenance on a legally constructed structure does not require compensatory mitigation unless: The maintenance causes a new loss of fish habitat, value or quantity not associated with the original construction of the structure.

(i) Maintenance work that rehabilitates and replaces a structure must comply with the applicable common technical provisions and project-specific and site-specific provisions.

### Clarifying information:

WDFW will honor the 2008 Memorandum of Agreement (MOA) between WDFW and WSDOT concerning the administration of hydraulic project approvals. This MOA identifies what are considered WSDOT maintenance activities and lists mitigation that WSDOT can and cannot do for maintenance work.

## **3) Streambank protection and shoreline stabilization**

WAC 220-660-130 Streambank protection and Lake Shoreline stabilization

(3)(a) The department may require a person to submit *a qualified professional's rationale* with the HPA application for a new structure or a replacement structure extending waterward of the existing structure or bankline. This requirement does not apply to projects that address constriction and drop/weir scour or other scour caused by an existing structure. The rationale for the proposed technique must include: (i)...the *level of risk* to existing buildings, roads or services being threatened by the erosion; (ii) Technical rationale specific to the project design, such as a *reach and site assessment*...

(3)(c) The department may require a person to incorporate large woody material or native vegetation into the design of the structure as partial or complete mitigation...

### Clarifying information:

Small erosion repair within the roadway prism and scour repair at a culvert inlet would not trigger the need to comply with the above provisions. Additionally, WSDOT's current practices for analyzing stream processes when designing new bank protection structures will satisfy this requirement.

## **4) Dredging**

WAC 220-660-170 Dredging in freshwater

(3)(c) The department may require a pre-project channel survey or assessment by a qualified professional to determine the root causes of a sediment deposition problem and the potential channel changes that may result from dredging...

### Clarifying information:

This rule update establishes new requirements when dredging in large rivers for the purpose of navigation and flood prevention. Minor sediment removal, such as that which is allowed under WSDOT's Channelized Stream GHPA (June 2014) and Culvert Maintenance GHPA (June 2014) will not trigger the need to comply with the above provision. WDFW intends to work with stakeholders in the 2015-2017 timeframe to develop a separate chapter for sediment removal from small streams.

## **5) Floodplain, channel migration & design requirements of water crossing structures**

WAC 220-660-190 Water Crossing Structures

(2) Fish Life Concerns: A person must design water crossing structures in fish-bearing streams to allow fish to move freely through them *at all flows* when fish are expected to move. All water crossings must retain upstream and downstream connection in order to *maintain expected channel processes*. These processes include the movement and distribution of wood and sediment *and shifting channel patterns*. Water crossings that are too small in relation to the stream can block or alter these processes, although

some encroachment of the *floodplain and channel migration zone* will be allowed when it can be shown that such encroachment has minimal impacts to fish and their habitat.

(4) Bridge Design ... (c) A bridge over a watercourse with an active floodplain must have a span wide enough to prevent a significant increase in the main channel average velocity (a measure of encroachment). This velocity must be determined at the one hundred year flow or the design flood flow determined by the department. The significance threshold should be determined by considering bed coarsening, scour, backwater, floodplain flow, and related biological and geomorphological effects typically in a reach analysis.

Clarifying information:

This rule update is not intended to imply that water crossing structures must fully span the floodplain or fully accommodate channel migration through the life of the structure. WDFW will allow encroachment into the floodplain and channel migration zone. If WSDOT's new structure is not significantly increasing the main channel average velocity compared to existing conditions, then no compensatory mitigation would be required. If the new structure significantly increases the main channel velocity above existing conditions in such a way that it significantly impacts fish habitat, then WSDOT would need to mitigate. Furthermore, WDFW does not intend to require compliance with any specific design criteria as long as the final design does not measurably impact fishlife. WSDOT and FHWA bridge design methodologies can be used to design a crossing that is adequate for the protection of fish life.

**6) Removing existing bridge components**

WAC 220-660-190 Water Crossing Structures

(3) Permanent Water Crossings – General

(f) When removing an existing crossing in preparation for a new crossing, a person must remove all the existing components (approach fill, foundations, stringers, deck, riprap, guide walls, culverts, aprons, etc.) likely to cause impacts to fish and their habitat. The department may approve the partial removal of certain components when leaving them has been shown to have no measurable, or minor, impact.

Clarifying information:

Removal of existing bridge components, including approach fill, would only be required if existing components are causing measurable impacts to existing fish and existing fish habitat. If there are no measurable impacts, then components can be left in place.

**7) Emergency Culvert Repairs**

WAC 220-660-190 Water Crossings

(8) Emergency Culvert Requirements

(b) Fish passage must be provided at the times of year when fish are expected to move. If the culvert design does not provide unimpeded fish passage a person can use methods found in 220-110-200 Fish Passage Improvement Structures to pass fish until a culvert is constructed.

Clarifying information:

This rule update is not intended to imply that emergency projects must provide fish passage during the life of the emergency situation. WDFW will, however, expect any temporary structures to pass adult fish during upstream salmon migration if they are blocked. If a water crossing provided fish passage prior to an emergency situation, then WDFW will expect the replacement/repair structure to provide fish passage. WDFW will expect the emergency repair/replacement culvert to be of a size equal to or greater than the structure that existed prior to the emergency.

**8) Fish ladders**

**WAC 220-660-200 Fish Passage Improvement Structures**

(7) Fish Ladder Operation and Maintenance

(a) If target fish species are present and actively migrating, fish ladders with managed flow must have enough water must be available at all stream flows to pass fish safely and efficiently through the fish ladder or the main channel without the need of a fish ladder.

Clarifying information:

This provision is only relevant to facilities where the flow is managed, as in an irrigation diversion, hydropower, or an off-channel fishway and it does not apply to WSDOT owned fishways.

**9) Water Crossing Design Guidelines**

WAC 220-660-190 Water Crossing Structures

Appropriate methods to design water crossing structures are available in the departments *Water Crossing Design Guidelines*, or other published manuals and guidelines. A list of approved manual and guidelines is on the department's website.

Clarifying information:

WDFW will accept water crossing designs that are compliant with Federal Highway and AASHTO guidelines when they are applied correctly for the protection of fish life.

**10) Roughened Channels**

**WAC 220-660-200 Fish Passage Improvement Structures**

(9) Roughened Channel Design

(Included in Fish Passage Structure section rather than in Water Crossing Section)

Clarifying information:

This rule update is not intended to preclude the design of Roughened Channels as water crossing structures. In some instances, this approach may be accepted as a superior way of providing fish passage by simulating reach based processes in locations that have been modified by external effects (e.g. urbanization). A roughened channel is an engineered solution to a stream problem that cannot be solved using natural channel design. As a result, the finished project has operational criteria that must be monitored and corrected if they are out of compliance.

By signature below, WSDOT and WDFW indicate acceptance with the provisions described in this document unless otherwise modified in writing by the agencies.

  
Megan White P.E., Director, Environmental Services Office  
Washington State Department of Transportation

3/3/2015  
Date

  
Jen Davis, Assistant Director, Habitat Program  
Washington State Department of Fish and Wildlife

3/5/15  
Date