



5. IMPLEMENTATION OF THE HABITAT CONSERVATION PLAN

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5.1 Introduction to Plan Implementation

Implementation of the City's HCP will be governed by a formal HCP Implementation Agreement (Appendix 1) and two related agreements, an Instream Flow Agreement (Appendix 27) and a Landsburg Mitigation Agreement (Appendix 28). These agreements define roles, responsibilities, and commitments of the various signatory parties; establish schedules and funding for activities; and describe oversight, decision-making, and related issues.

The HCP and the Implementation Agreement are complementary to each other. As described in Chapter 2, together the HCP and Implementation Agreement fulfill the requirements of the Endangered Species Act for issuance of an incidental take permit for listed and unlisted species that are addressed by the HCP. The HCP Implementation Agreement will be signed by the City, USFWS, and NMFS.

In addition to the general provisions described above for all three agreements, the Implementation Agreement describes how unforeseen circumstances will be handled should they occur, how the plan may be amended, and how compliance activities will be conducted. The Implementation Agreement also incorporates the federal No Surprises Policy for HCPs, pursuant to a final rule published February 23, 1998 (see Chapter 2).

The Instream Flow Agreement is expected to be signed by the City, USFWS, NMFS, WDFW, and WDOE, with the ACOE potentially signing later. The City and Services hope that it may also eventually be signed by the Muckleshoot Indian Tribe, which has been involved in the development of the HCP and the Instream Flow Agreement. The Instream Flow Agreement describes commitments by the City for minimum instream flows; goals for supplementation of minimum flows; operation of a multi-agency instream flow commission; and water conservation improvements at the Ballard Locks that would provide improved survival of juvenile fish passing out to sea through the locks. The Instream Flow Agreement is largely intended to resolve issues about river flows related to a variety of interests, other than the ESA, of the different signatory parties.

The Landsburg Mitigation Agreement is expected to be signed by the City, USFWS, NMFS, and WDFW. The City and Services hope that it may also eventually be signed by the Muckleshoot Indian Tribe, which has been involved in the development of the HCP and the Landsburg Mitigation Agreement. The Landsburg Mitigation Agreement covers mitigation for the blockage to anadromous fish posed by the Landsburg Diversion Dam, where the City diverts water for municipal and industrial supply. The Landsburg Mitigation Agreement is largely intended to resolve issues related to state law about blockages to fish passage.

The remainder of Chapter 5 generally describes the timing and duration of the HCP, funding and handling of costs, oversight, and adaptive management. Adaptive management is an integral part of the HCP and is an important feature of the extensive research and monitoring program described in Section 4.5.

5.2 Duration and Timing of HCP

5.2.1 Term

The term of the HCP is approximately 50 years. Because of uncertainty with respect to the actual date of implementation, the initial term may be slightly longer. It will run forty nine (49) years beyond the end of HCP year 1 of the schedule of activities described in this HCP. HCP year 1 is defined as the period from the effective date of the Implementation Agreement until the end of the first full calendar year following that date. For example, if the Implementation Agreement becomes effective in January of 2000, HCP year 1 will run from January of 2000 through December of 2001. HCP year 2 and all succeeding HCP years will coincide with the calendar years that follow the end of HCP year 1.

5.2.2 Schedule

The schedules for various activities in the HCP are given in Chapter 4 for the specific conservation and mitigation strategies (sections 4.2-4.4), and for the monitoring and research program (Section 4.5). A Little more than half of the total funding for the HCP is expected to be spent in the first decade (Table 5.3-2), largely because of the need to complete important restoration projects early and conduct key studies at the beginning of the plan's term.

Approximately three-fourths of the capital project costs are scheduled to be spent in the first decade (Table 5.3-2). The fish passage facilities, sockeye hatchery, and nearly half of the watershed restoration projects are scheduled for completion in the first decade.

Approximately half of the monitoring and research funds are scheduled to be spent in the first decade (Table 5.3-2). The Cedar Dead Storage Project Evaluation, several sockeye research studies, the accretion inflow study in the lower Cedar River, early species surveys, and watershed habitat research and model development are all scheduled for completion in the first decade.

5.3 Funding

5.3.1 General Funding Provisions

The City will fully fund its commitments made in the HCP, subject to the overall cost cap established for the HCP. The funding commitments are described in detail in Chapter 4 and summarized in Table 5.3-2 below. Funding will be from sources at the City's discretion, including, but not limited to, revenues from the sale of water, timber (if from the Cedar River Municipal Watershed, consistent with the conservation and mitigation measures described in Chapter 4), and land, and from outside sources, such as grants or contributions.

The City and the agencies that are signatories to HCP Implementation Agreement and related agreements will strive to achieve an efficient and effective use of funds to

accomplish the goals, objectives, and elements of the HCP within the overall cost cap and within established fund transfer limitations, as described below. The City agrees to make available for mitigation and monitoring the full amount of money specified in the HCP, regardless of whether or not cost savings are achieved on individual elements of the HCP. The City is under no obligation to exceed the total funding commitment in the HCP.

5.3.2 Flexibility to Reallocate Funds Among Elements of the HCP

The City recognizes that changes in the allocation of funds among different elements of the HCP may be required during implementation. For example, some experimental projects may not prove effective, and may need to be changed. For some major projects, such as the sockeye hatchery, the project may be significantly modified or an alternative strategy may be followed. In addition, some elements may cost more or less to accomplish than is allocated. In order to allow flexibility in implementation to address such situations, the HCP includes provisions to transfer funds among elements of the HCP, or to new elements that may be added in the future. Such changes will be made subject to the overall cost cap for the HCP and a set of constraints designed to retain the overall integrity of the conservation objectives of the HCP.

To retain the integrity of the HCP but also allow flexibility, eight specific subdivisions of HCP activities, called Cost Categories, have been identified (Table 5.3-1), within which funds can be transferred. These Cost Categories are treated the same as the overall cost cap for the HCP, in that each is also capped. That is, the City commits to fully fund each of those Cost Categories, but will not exceed the total (cost cap) for each, and cannot transfer funds *among* the different Cost Categories without a plan amendment, as described below. In addition, unless the City specifically agrees otherwise, funds are not transferable between operating and capital project elements of the HCP. This provision is important because of the City's need to plan its financial commitments and the differential effect of capital versus operational activities on annual costs.

As further described in the Implementation Agreement, the City will have the authority to make minor transfers of funds among activities *within* a Cost Category in order to accomplish elements of the HCP, as long as such transfers do not reduce the City's ability to accomplish the agreed-upon elements of the HCP and do not compromise the overall purposes and objectives of the HCP. Significant transfers of funds will be subject to approval of the signatories to the Implementation Agreement or related agreements, as appropriate.

Table 5.3-1. Cost categories for the HCP.

Cost Category ¹	Approvals
Watershed Management	Signatories to the Implementation Agreement
Instream Flow Management	Signatories to the Instream Flow Agreement
Mitigation for chinook, coho, and steelhead	Signatories to the Landsburg Mitigation Agreement
Mitigation for sockeye ²	Signatories to the Landsburg Mitigation Agreement
Watershed research and monitoring	Signatories to the Implementation Agreement
Instream flow research and monitoring	Signatories to the Instream Flow Agreement
Chinook, coho, and steelhead research and monitoring	Signatories to the Landsburg Mitigation Agreement
Sockeye research and monitoring	Signatories to the Landsburg Mitigation Agreement

¹ Approvals required, by category, for funding commitments encompassed by the referenced agreement.

² As provided in the Landsburg Mitigation Agreement (Appendix 28) and Section 4.3.2 of the HCP, *both* funding for habitat protection and restoration in the Cedar River Basin below Landsburg *and* any savings from the construction or operation of the replacement sockeye hatchery may be used for fish habitat acquisition, restoration, or enhancement in the Lake Washington Basin for any or all anadromous fish species.

In order to most effectively achieve the overall conservation objectives of the HCP, additional flexibility may be needed to transfer funds among, not just within, Cost Categories. The transfer of funds between the Cost Categories listed and described above will require an amendment to the HCP, and may require approval of parties to the Instream Flow Agreement or Landsburg Mitigation Agreement if the activities involved are covered by one of those agreements.

5.3.3 Adjustment for Inflation or Deflation

All cost estimates and commitments in the HCP are given in 1996 dollars. These figures will be annually adjusted in a standard manner for inflation or deflation.

Table 5.3.2. Summary of funding commitments in HCP (in nearest thousands of 1996 dollars).

YEARS:	CIP/ O&M ²	Total 50-yr.	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-30	31-40	41-50
WATERSHED MANAGEMENT																	
Road improvements and maintenance	TOTAL	\$15,518.00	\$693.60	\$693.60	\$693.60	\$693.60	\$693.60	\$530.00	\$530.00	\$530.00	\$530.00	\$530.00	\$2,112.50	\$2,112.50	\$1,725.00	\$1,725.00	\$1,725.00
Road decommissioning	CIP	\$5,000.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$1,250.00	\$1,250.00	\$0.00	\$0.00	\$0.00
Road improvements	CIP	\$7,250.00	\$350.00	\$350.00	\$350.00	\$350.00	\$350.00	\$350.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$562.50	\$562.50	\$1,125.00	\$1,125.00
Road maintenance	O&M	\$3,268.00	\$93.60	\$93.60	\$93.60	\$93.60	\$93.60	\$80.00	\$80.00	\$80.00	\$80.00	\$80.00	\$300.00	\$300.00	\$600.00	\$600.00	\$600.00
Stream and riparian restoration	TOTAL	\$4,404.99	\$186.38	\$186.38	\$186.38	\$186.38	\$186.38	\$186.38	\$186.38	\$186.38	\$117.00	\$117.00	\$585.00	\$349.71	\$581.76	\$581.76	\$581.76
Large woody debris replacement in streams	CIP	\$975.00	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$46.88	\$46.88	\$234.38	\$105.70	\$147.06	\$147.06	\$147.06
Bank stabilization	CIP	\$756.00	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$98.75	\$71.51	\$129.41	\$129.41	\$129.41
Bank revegetation	CIP	\$212.00	\$6.63	\$6.63	\$6.63	\$6.63	\$6.63	\$6.63	\$6.63	\$6.63	\$6.63	\$6.63	\$33.13	\$19.10	\$31.18	\$31.18	\$31.18
Conifer under-planting	CIP	\$212.00	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$31.25	\$19.43	\$32.94	\$32.94	\$32.94
Restoration thinning	CIP	\$180.00	\$5.63	\$5.63	\$5.63	\$5.63	\$5.63	\$5.63	\$5.63	\$5.63	\$5.63	\$5.63	\$28.13	\$16.21	\$26.47	\$26.47	\$26.47
Stream crossing projects to pass peak flows	CIP	\$850.00	\$15.63	\$15.63	\$15.63	\$15.63	\$15.63	\$15.63	\$15.63	\$15.63	\$15.63	\$15.63	\$78.13	\$86.21	\$176.47	\$176.47	\$176.47
Stream crossing projects for fish passage	CIP	\$1,220.00	\$120.00	\$120.00	\$120.00	\$120.00	\$120.00	\$120.00	\$120.00	\$120.00	\$16.25	\$16.25	\$81.25	\$31.54	\$38.24	\$38.24	\$38.24
Upland reserve forest restoration	TOTAL	\$3,920.00	\$242.38	\$242.38	\$242.38	\$242.38	\$242.38	\$242.38	\$242.38	\$242.38	\$179.88	\$179.88	\$930.63	\$117.10	\$191.18	\$191.18	\$191.18
Restoration thinning	CIP	\$2,620.00	\$201.75	\$201.75	\$201.75	\$201.75	\$201.75	\$201.75	\$201.75	\$201.75	\$139.25	\$139.25	\$727.50	\$0.00	\$0.00	\$0.00	\$0.00
Ecological thinning	CIP	\$1,000.00	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$156.25	\$90.07	\$147.06	\$147.06	\$147.06
Restoration planting	CIP	\$300.00	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$46.88	\$27.02	\$44.12	\$44.12	\$44.12
TOTAL WATERSHED		\$23,843.00	\$1,122.35	\$1,122.35	\$1,122.35	\$1,122.35	\$1,122.35	\$958.75	\$958.75	\$958.75	\$826.88	\$826.88	\$3,628.13	\$2,579.30	\$2,497.94	\$2,497.94	\$2,497.94
LANDSBURG MITIGATION																	
Chinook, coho, steelhead mitigation	TOTAL	\$9,481.00	\$591.00	\$2,500.00	\$3,025.00	\$705.00	\$140.00	\$140.00	\$140.00	\$140.00	\$50.00	\$50.00	\$250.00	\$250.00	\$500.00	\$500.00	\$500.00
Interim chinook, coho, steelhead mitigation	O&M	\$720.00	\$90.00	\$90.00	\$90.00	\$90.00	\$90.00	\$90.00	\$90.00	\$90.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Construction of intake screens	CIP	\$2,859.00	\$246.00	\$1,182.00	\$1,182.00	\$249.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Construction of fish ladders	CIP	\$2,011.00	\$172.00	\$832.00	\$832.00	\$175.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Construction of downstream passage	CIP	\$958.00	\$83.00	\$396.00	\$396.00	\$83.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operation of passage facilities	O&M	\$2,350.00	\$0.00	\$0.00	\$0.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$250.00	\$250.00	\$500.00	\$500.00	\$500.00
Contingency fund for fish passage facilities	CIP	\$583.00	\$0.00	\$0.00	\$525.00	\$58.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Sockeye mitigation	TOTAL	\$22,734.00	\$737.00	\$674.00	\$575.00	\$3,538.00	\$3,710.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$1,500.00	\$1,500.00	\$3,000.00	\$3,000.00	\$3,000.00
Interim sockeye mitigation	CIP	\$1,024.00	\$128.00	\$256.00	\$256.00	\$128.00	\$128.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Hatchery construction	CIP	\$7,678.00	\$477.00	\$318.00	\$319.00	\$3,282.00	\$3,282.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operation of replacement hatchery	O&M	\$13,800.00	\$0.00	\$0.00	\$0.00	\$0.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$1,500.00	\$1,500.00	\$3,000.00	\$3,000.00	\$3,000.00
Supplementation guidelines	CIP	\$32.00	\$32.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Broodstock collection solutions & monitoring	CIP	\$200.00	\$100.00	\$100.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Downstream habitat: all species	TOTAL (CIP)	\$1,637.00	\$0.00	\$98.00	\$147.00	\$1,392.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL LANDSBURG MITIGATION		\$33,852.00	\$1,328.00	\$3,272.00	\$3,747.00	\$5,635.00	\$3,850.00	\$440.00	\$440.00	\$440.00	\$350.00	\$350.00	\$1,750.00	\$1,750.00	\$3,500.00	\$3,500.00	\$3,500.00

YEARS:	CIP/ O&M ²	Total 50-yr.	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-30	31-40	41-50	
INSTREAM FLOWS																		
Powerhouse improvements	TOTAL	\$600.00	\$350.00	\$0.00	\$250.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Emergency bypass	CIP	\$350.00	\$350.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tailrace rack	CIP	\$250.00	\$0.00	\$0.00	\$250.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Locks improvements ³	TOTAL	\$1,875.00	\$875.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Smolt passage improvements	CIP	\$625.00	\$625.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Freshwater conservation	CIP	\$1,250.00	\$250.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Conservation messages for fish	TOTAL (O&M)	\$1,500.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$150.00	\$150.00	\$300.00	\$300.00	\$300.00	\$300.00
Downstream Habitat	TOTAL	\$3,270.00	\$0.00	\$1,270.00	\$1,000.00	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Downstream habitat protection & restoration	CIP	\$3,000.00	\$0.00	\$1,000.00	\$1,000.00	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Walsh Lake restoration	CIP	\$270.00	\$0.00	\$270.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL INSTREAM FLOWS		\$7,245.00	\$1,255.00	\$1,300.00	\$1,280.00	\$1,030.00	\$30.00	\$1,030.00	\$30.00	\$30.00	\$30.00	\$30.00	\$150.00	\$150.00	\$300.00	\$300.00	\$300.00	\$300.00
RESEARCH AND MONITORING																		
Instream flow monitoring and research	TOTAL	\$3,409.15	\$391.94	\$407.04	\$339.04	\$318.04	\$197.04	\$162.51	\$132.51	\$132.51	\$86.51	\$86.51	\$196.15	\$137.05	\$274.10	\$274.10	\$274.10	\$274.10
Existing stream gage at Cedar Falls	O&M	\$246.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.47	\$5.47	\$5.47	\$5.47	\$5.47	\$27.35	\$27.35	\$54.70	\$54.70	\$54.70	\$54.70
Existing stream gages below Landsburg	O&M	\$547.00	\$10.94	\$10.94	\$10.94	\$10.94	\$10.94	\$10.94	\$10.94	\$10.94	\$10.94	\$10.94	\$54.70	\$54.70	\$109.40	\$109.40	\$109.40	\$109.40
New stream gage above Powerhouse	O&M	\$525.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.00	\$11.00	\$11.00	\$11.00	\$11.00	\$55.00	\$55.00	\$110.00	\$110.00	\$110.00	\$110.00
New gage at Renton	O&M	\$121.00	\$30.00	\$9.10	\$9.10	\$9.10	\$9.10	\$9.10	\$9.10	\$9.10	\$9.10	\$9.10	\$9.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Temporary gages in lower river (2)	O&M	\$130.00	\$30.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Switching criteria study	O&M	\$200.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Steelhead redd monitoring	O&M	\$240.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Chinook studies	O&M	\$1,000.00	\$241.00	\$257.00	\$189.00	\$168.00	\$97.00	\$16.00	\$16.00	\$16.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Accretion flow study	O&M	\$400.00	\$0.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$0.00	\$0.00	\$0.00	\$0.00
Passage of chinook, coho, steelhead above Landsburg	TOTAL	245.00	70.00	0.00	0.00	65.00	5.00	5.00	5.00	15.00	5.00	15.00	35.00	15.00	10.00	0.00	0.00	0.00
Counts at Landsburg fish ladders	O&M	110.00	0.00	0.00	0.00	50.00	5.00	5.00	5.00	5.00	5.00	5.00	25.00	5.00	0.00	0.00	0.00	0.00
Landsburg intake screen evaluation	O&M	15.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drinking water quality monitoring	O&M	120.00	70.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	10.00	10.00	10.00	10.00	0.00	0.00	0.00
Sockeye monitoring and research	TOTAL	\$3,473.00	\$200.00	\$175.00	\$175.00	\$175.00	\$124.00	\$124.00	\$124.00	\$124.00	\$99.00	\$99.00	\$234.00	\$60.00	\$750.00	\$190.00	\$820.00	\$820.00
Fry condition at release	O&M	\$92.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$10.00	\$10.00	\$20.00	\$20.00	\$20.00	\$20.00
Fry marking and evaluation	O&M	\$320.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$0.00	\$0.00	\$0.00	\$0.00	\$80.00	\$0.00	\$80.00	\$80.00
Fry trapping and counting	O&M	\$560.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$0.00	\$0.00	\$0.00	\$0.00	\$140.00	\$0.00	\$140.00	\$140.00
Fish health	O&M	\$620.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$70.00	\$50.00	\$140.00	\$100.00	\$140.00	\$140.00
Short-term fry rearing	O&M	\$65.00	\$35.00	\$10.00	\$10.00	\$10.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Lake Washington plankton studies (year-round)	O&M	\$480.00	\$40.00	\$40.00	\$40.00	\$40.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$160.00	\$0.00	\$160.00	\$160.00
Lake plankton studies (spring)	O&M	\$56.00	\$0.00	\$0.00	\$0.00	\$0.00	\$7.00	\$7.00	\$7.00	\$7.00	\$7.00	\$7.00	\$14.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

YEARS:	CIP/ O&M ²	Total 50-yr.	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-30	31-40	41-50
Adult survival, distribution, homing studies	O&M	\$800.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$80.00	\$0.00	\$120.00	\$40.00	\$160.00
Phenotypic and genetic studies of adults	O&M	\$480.00	\$30.00	\$30.00	\$30.00	\$30.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.00	\$30.00	\$60.00	\$0.00	\$90.00	\$30.00	\$120.00
Watershed aquatic monitoring and research	TOTAL	\$2,729.00	\$134.50	\$237.50	\$212.50	\$308.50	\$148.50	\$148.50	\$172.50	\$157.50	\$52.50	\$124.50	\$369.50	\$246.50	\$220.00	\$98.00	\$98.00
Two-year experimental stream monitoring ⁴	O&M	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Long-term stream monitoring	O&M	\$459.00	\$0.00	\$0.00	\$0.00	\$54.00	\$26.00	\$26.00	\$50.00	\$23.00	\$0.00	\$47.00	\$70.00	\$47.00	\$70.00	\$23.00	\$23.00
Aquatic restoration monitoring	O&M	\$875.00	\$0.00	\$0.00	\$0.00	\$25.00	\$25.00	\$25.00	\$50.00	\$50.00	\$50.00	\$50.00	\$250.00	\$150.00	\$100.00	\$50.00	\$50.00
Bull trout - adult surveys (weir)	O&M	\$350.00	\$50.00	\$50.00	\$50.00	\$50.00	\$25.00	\$25.00	\$0.00	\$0.00	\$0.00	\$25.00	\$25.00	\$25.00	\$25.00	\$0.00	\$0.00
Bull trout - adult surveys (spawning)	O&M	\$280.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bull trout - fry/juvenile surveys	O&M	\$280.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bull trout - stream telemetry studies ⁵	O&M	\$120.00	\$0.00	\$60.00	\$0.00	\$60.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bull trout -lake telemetry studies ⁵	O&M	\$70.00	\$0.00	\$0.00	\$35.00	\$35.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bull trout - stream distribution	O&M	\$60.00	\$12.00	\$0.00	\$0.00	\$12.00	\$0.00	\$0.00	\$0.00	\$12.00	\$0.00	\$0.00	\$12.00	\$12.00	\$0.00	\$0.00	\$0.00
Bull trout - redd inundation study	O&M	\$110.00	\$0.00	\$55.00	\$55.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Common loon monitoring	O&M	\$125.00	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$12.50	\$12.50	\$25.00	\$25.00	\$25.00
Watershed terrestrial monitoring and research	TOTAL	\$2,630.01	\$85.63	\$85.63	\$156.67	\$131.67	\$181.67	\$119.17	\$154.17	\$104.17	\$81.04	\$81.04	\$248.34	\$200.83	\$373.33	\$299.23	\$327.43
Assessment of expanded forest stand data	O&M	\$75.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Assessment of expanded forest attribute data	O&M	\$75.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Augmentation of forest habitat inventory	O&M	\$75.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Long-term forest habitat inventory (including old-growth classification and field verification)	O&M	\$525.02	\$15.00	\$15.00	\$24.38	\$24.38	\$24.38	\$21.88	\$21.88	\$21.88	\$21.88	\$21.88	\$42.50	\$37.50	\$75.00	\$75.00	\$82.50
Habitat restoration - riparian forest development	O&M	\$335.00	\$0.00	\$0.00	\$5.83	\$5.83	\$5.83	\$5.83	\$5.83	\$5.83	\$10.71	\$10.71	\$53.57	\$37.50	\$75.00	\$62.50	\$50.00
Habitat restoration - upland forest development	O&M	\$335.00	\$0.00	\$0.00	\$5.83	\$5.83	\$5.83	\$5.83	\$5.83	\$5.83	\$10.71	\$10.71	\$53.57	\$37.50	\$75.00	\$62.50	\$50.00
Marbled murrelet - survey, old growth	O&M	\$75.00	\$0.00	\$0.00	\$25.00	\$25.00	\$25.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Marbled murrelet - baseline survey, second growth	O&M	\$150.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.00	\$50.00	\$50.00	\$25.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Marbled murrelet - long term surveys	O&M	\$100.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50.00	\$0.00	\$50.00
Marbled murrelet - experimental habitat study	O&M	\$185.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00	\$40.00	\$10.00	\$25.00	\$30.00
Spotted owl - baseline survey ⁷	O&M	\$75.00	\$0.00	\$0.00	\$25.00	\$0.00	\$25.00	\$0.00	\$25.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Spotted owl - site center survey	O&M	\$75.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$15.00	\$10.00	\$25.00	\$12.50	\$12.50
Optional species/habitat surveys	O&M	\$150.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.17	\$4.17	\$20.83	\$20.83	\$33.33	\$35.90	\$30.77
Data/GIS compatibility	O&M	\$150.00	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$3.57	\$3.57	\$17.86	\$12.50	\$25.00	\$20.83	\$16.67
Forest habitat modeling	O&M	\$75.00	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$9.38	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Species-habitat relations modeling	O&M	\$175.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Cedar permanent dead storage project evaluation	TOTAL	\$1,445.00	\$225.50	\$265.50	\$365.50	\$405.50	\$153.00	\$30.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Engineering, water quality, and	CIP	\$700.00	\$140.00	\$140.00	\$140.00	\$140.00	\$140.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

YEARS:	CIP/ O&M ²	Total 50-yr.	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-30	31-40	41-50
economic studies																	
Bull trout - spawning impedance (passage plan)	CIP	\$65.00	\$13.00	\$13.00	\$13.00	\$13.00	\$13.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bull trout - spawning impedance (delta modeling)	CIP	\$290.00	\$72.50	\$72.50	\$72.50	\$72.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pygmy whitefish/rainbow trout studies	CIP	\$280.00	\$0.00	\$0.00	\$140.00	\$140.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Delta plant community monitoring ⁵	CIP	\$80.00	\$0.00	\$40.00	\$0.00	\$40.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Common loon nesting habitat monitoring	CIP	\$30.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MONITORING & RESEARCH TOTAL		\$13,931.16	\$1,107.57	\$1,170.67	\$1,248.71	\$1,403.71	\$809.21	\$589.18	\$588.18	\$533.18	\$324.05	\$406.05	\$1,082.99	\$659.38	\$1,627.43	\$861.33	\$1,519.53
GRAND TOTAL		\$78,871.16	\$4,812.92	\$6,865.02	\$7,398.06	\$9,191.06	\$5,811.56	\$3,017.93	\$2,016.93	\$1,961.93	\$1,530.93	\$1,612.93	\$6,611.11	\$5,138.68	\$7,925.37	\$7,159.27	\$7,817.48
TOTAL CIP		\$44,747.00	\$3,717.25	\$5,746.25	\$6,301.25	\$7,929.25	\$4,591.75	\$1,908.75	\$878.75	\$878.75	\$746.88	\$746.88	\$3,328.13	\$2,279.30	\$1,897.94	\$1,897.94	\$1,897.94
TOTAL O&M		\$34,124.16	\$1,095.67	\$1,118.77	\$1,096.81	\$1,261.81	\$1,219.81	\$1,109.18	\$1,138.18	\$1,083.18	\$784.05	\$866.05	\$3,282.99	\$2,859.38	\$6,027.43	\$5,261.33	\$5,919.53

¹ Approximate timing of activities and expenditures. May vary for specific activities. Please see text in Chapter 4 for details.

² CIP: Capital Improvement Project; O&M: Operations and Maintenance (operating expenses).

³ Project likely to be delayed, depending on ACOE schedule and other factors.

⁴ Completed.

⁵ Any 2 years within HCP years 2-7.

⁶ Within HCP years 3-9.

⁷ HCP years 3-10.

5.4 Oversight of HCP Implementation

Significant attention has been given to HCPs in recent years. One concern expressed by the public and scientists has been that there is little opportunity for the public or outside scientists to be involved in the development and implementation of such plans. Because of the long-term nature of many HCPs, there is keen interest in determining how such plans are functioning with respect to their objectives. The City recognized the need for such involvement during development of the HCP, and held a number of workshops with outside scientists (Section 3.3.4), as well as an extensive public outreach program (Revised Cedar River Watershed HCP EA/Final EIS, Section 1.7). In response to comments from the scientists and the public, the City made a variety of substantial changes to the draft HCP and incorporate elements of several of the alternatives evaluated in the EA/EIS into the this final HCP.

In addition, the City recognizes the need for the signatories to the Implementation Agreement and related agreements to be involved in implementation of the HCP, as well as the public and outside scientists. The City will establish an overall HCP Oversight Committee, and later subcommittees or groups as needed, that will serve to advise the City during implementation of the HCP. Each signatory to the Implementation Agreement or to either of the two related agreements, and the Muckleshoot Indian Tribe, will have one designated member on the HCP Oversight Committee. King County will have one advisory representative on the HCP Oversight Committee, contingent on the County's written endorsement of the HCP.

After consulting with the various parties to the Implementation Agreement and related agreements, the City will appoint additional advisory members to the HCP Oversight Committee to effect broad representation during the implementation process. Included will be outside scientists and representatives of the general public, other public agencies, and interest groups, including environmental groups, and fish advocacy groups, as well as one representative with knowledge of forest science. The City will chair the HCP Oversight Committee, as well as any subcommittees and work groups that may be established, and will provide administrative support. The HCP Oversight Committee will meet at least annually, but may adopt a reduced meeting frequency after the first decade.

As described in the Implementation Agreement (Appendix 1), the HCP Oversight Committee's function will be to advise the City concerning HCP implementation. It will serve as a forum for: (i) communication regarding implementation of the HCP; (ii) identification of issues that need discussion and resolution; and (iii) periodic review of HCP progress. The Oversight Committee is advisory to the City and cannot override the decisions or actions taken under the Instream Flow Agreement or Landsburg Mitigation Agreement.

The City, in consultation with the HCP Oversight Committee, may also establish subcommittees or *ad hoc* advisory working groups as needed for specific projects or issues. Such subcommittees and working groups will be advisory to the City, and the City will determine membership and administrative rules for them, after consulting with the HCP Oversight Committee. The HCP Oversight Committee will coordinate any

subcommittees and the work groups that are established. The City will establish, convene and chair all such groups, and will provide administrative support.

Pursuant to the two related agreements, the City will also establish the following commission and committee:

- *Cedar River Instream Flow Oversight Commission.* This commission, established by the Instream Flow Agreement (Appendix 27), will oversee instream flow decisions, as well as instream flow monitoring and research. Membership will include all signatories to the Instream Flow Agreement and the Muckleshoot Indian Tribe, as well as King County in an advisory capacity if the County provides a written endorsement of the HCP.
- *Cedar River Anadromous Fish Committee.* This committee, established by the Landsburg Mitigation Agreement (Appendix 28), will advise the City regarding implementation of anadromous fish mitigation, including anadromous fish monitoring and research. Membership will include one representative each for the four signatories to the Landsburg Mitigation Agreement, the Muckleshoot Indian Tribe, and King County, if the County provides a written endorsement of the HCP. In addition, there will be one representative of the parties that were signatory to the June 11, 1999, Notice of Appeal of the Final EIS, and three other stakeholders selected by unanimous agreement of the Parties to the Landsburg Mitigation Agreement..

The functioning of the various implementation committees is further described in the Implementation Agreement and related agreements (appendices 1, 27, and 28).

5.5 Adaptive Management

5.5.1 Schedule for Development of Specific Applications of Adaptive Management

The City will develop written approaches for the application of adaptive management to the environmental events and the three specific HCP issues described in Section 4.5.7 in the section entitled “Specific Applications of Adaptive Management for Changed Circumstances.” The approaches for adaptive management related to two of the specific applications cannot be developed until particular project plans are completed for those activities, because such plans will affect the choice of criteria and monitoring needs. However, the adaptive management plan for the flow accretion study, which will be initiated with implementation of the HCP, can be developed concurrent with development of the accretion flow study design and initial implementation of the study. The City will develop written approaches for the application of adaptive management according to the following schedule:

- (1) Accretion Flows. By the end of HCP Year 3.
- (2) Landsburg Fish Passage. One year prior to initiation of passage of adult chinook or coho salmon, or steelhead trout, above the Landsburg Diversion Dam.

- (3) Sockeye Hatchery Operation. One year prior to initial operation of the replacement sockeye hatchery, and prior to the final decision to construct the hatchery.

Formal written approaches will not be developed for those cases where adaptive management is used simply as a general tool for adaptively responding to new information or understanding, or for changed circumstances related to environmental events (Section 4.5.7). Decisions about effectiveness and changes to mitigation or conservation strategies will be based on the conservation objectives of the relevant mitigation or conservation strategies. Such cases of the general application of adaptive management are expected to include experimental projects for watershed restoration (Section 4.2); adaptive changes in the allocation of “discretionary water” and other decisions regarding instream flow management handled under the provisions of the Instream Flow Agreement (Section 4.4 and Appendix 27); operation of other oversight committees that are involved in real-time decisions and project planning, review of progress, and adjustments to the plan (Section 5.4); the ability to transfer funds among elements of the HCP, or to new elements, but within limits to ensure that the integrity of the plan is maintained (Section 5.3.2); the flexibility to alter mitigation and conservation strategies in response to new information or a change in status of species addressed in the HCP; and minor modifications to the HCP under provisions of the Implementation Agreement (Appendix 1, § 12.1).

5.5.2 Limits to City Commitments

The Implementation Agreement (Appendix 1) specifies how funding or other commitments of resources will be treated regarding any additional mitigation developed under adaptive management during implementation of the HCP. Except as specified above under the subsection entitled “Specific Applications of Adaptive Management for Changed Circumstances,” application of adaptive management in this HCP is subject to the overall cost constraints described in Section 5.3.1, and §§ 7.4 and 9.1 of Appendix 1. For remaining cases, funding and commitment of resources will be derived from within the plan’s overall, agreed-upon funding and resource commitments, or from sources other than the City, unless the City otherwise agrees.