Table D-1. Cost of Proposed Environmental Measures.

Revised 8-1-2022 to reflect Fish Passage Settlement Agreement mitigation schedule

Post License Incremental Operating and Capital Expense Vernon		2020 Dollars	Yr'ly Average over 40 years	YEAR UNDER NEW LICENSE Year Assumed Costs in 2020 $'s	1 2023	2 2024	3 2025	4 2026	5 2027	6 2028	7 2029	8 2030	9 2031	10 2032	11 2033	12 2034	13 2035	14 2036	15 2037	16 2038	17 2039	18 2040	19 2041	20 2042	21 2043
Cultural - Historic Resources Enhancement Measures	**$ 600,000**																								
Cultural Resources - Phase 1B complete surveys	CapEx	$ 150,000	$ 3,750		$ -	$ -	$ 50,000	$ 50,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	CapEx	$ 300,000	$ 7,500		$ -	$ -	$ 25,000	$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	$ -
Cultural and Historic fund	CapEx	$ 150,000	$ 3,750		$ -	$ -	$ 50,000	$ 50,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishery and Aquatic Resource Enhancement Measures	**$ 9,470,000**																								
Evaluate whether fish are trapped behind collection gallery below powerhouse	CapEx	$ 10,000	$ 250		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Implement solution if fish are trapped behind collection gallery	CapEx	$ 50,000	$ 1,250		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Implement Improvements to Counting window and room	CapEx	$ 180,000	$ 4,500		$ -	$ -	$ -	$ -	$ 30,000	$ 125,000	$ 25,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitor Fishlader use by Eel and Sea Lamprey	CapEx	$ 60,000	$ 1,500		$ -	$ -	$ -	$ 30,000	$ 30,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	CapEx	$ 280,000	$ 7,000		$ -	$ -	$ -	$ 140,000	$ 140,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fishladder Hydraulic Study	CapEx	$ 250,000	$ 6,250		$ -	$ -	$ 200,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Upstream Fish Ladder Modifications (consult, design,install)	CapEx	$ 1,050,000	$ 26,250		$ -	$ -	$ -	$ -	$ 50,000	$ 500,000	$ 500,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) below station or in ladder	CapEx	$ 220,000	$ 5,500		$ -	$ -	$ -	$ 60,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 60,000	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	CapEx	$ 160,000	$ 4,000		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 120,000	$ -	$ -	$ -	$ -	$ 40,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishladder Operation additional O&M	OpEx	$ 390,000	$ 9,750		$ -	$ -	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Eel Ramp O&M and fish handling	OpEx	$ 1,850,000	$ 46,250		$ -	$ -	$ -	$ -	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Impoundment Shad/Eel DS passage route studies	CapEx	$ 70,000	$ 1,750		$ -	$ -	$ -	$ -	$ 70,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hydraulic Study above the dam for downstream passage design/options	CapEx	$ 200,000	$ 5,000		$ -	$ -	$ 150,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shad/ElDownstream Fish Passage Modifications	CapEx	$ 3,350,000	$ 83,750		$ -	$ -	$ -	$ 350,000	$ 500,000	$ 1,250,000	$ 1,250,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shad/Eel Downstream Passage improvement effectiveness evaluations	CapEx	$ 400,000	$ 10,000		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 200,000	$ 200,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Repair or Replace Fish Trap	CapEx	$ 950,000	$ 23,750		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 150,000	$ 800,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recreation Resource Enhancement Measures	**$ 665,000**																								
Existing Recreation Improvements Design and Permitting	CapEx	$ 25,000	$ 625				$ 25,000																		
Upstream Portage - new floating dock, pathway and boat slide	CapEx	$ 15,000	$ 375		$ -	$ -	$ -	$ 15,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Downstream Portage - Trail improvement, new stairs, path and boat slide	CapEx	$ 15,000	$ 375		$ -	$ -	$ -	$ 15,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gov. Hunt/Vernon Glen-ADA Improvements to Parking and Picnic Sites	CapEx	$ 25,000	$ 625		$ -	$ -	$ -	$ 25,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stebbins Island Canoe Camp site rehabilitation and improvements	CapEx	$ 5,000	$ 125		$ -	$ -	$ -	$ 5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Visitor Fish Ladder Window - update window, lighting, ADA accessibility	CapEx	$ 25,000	$ 625		$ -	$ -	$ -	$ -	$ -	$ 20,000	$ 5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	OpEx	$ 555,000	$ 13,875		$ -	$ -	$ -	$ -	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Water Resources - Operations	**$ 1,850,000**																								
WSE monitoring Inflow forecasting equipment and installation	CapEx	$ 650,000	$ 16,250		$ -	$ 50,000	$ 300,000	$ 300,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	OpEx	$ 1,200,000	$ 30,000		$ -	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Total Vernon Opex (2020$'s)	**OpEx**	**$ 3,995,000**																							
Total Vernon Capex (2020$'s)	**CapEx**	**$ 8,590,000**																							
Total Vernon Opex & CapEx (2020$'s)	**$ 12,585,000**	**$ 12,585,000**																							
		$ 12,585,000	$ 314,625		$ -	$ 80,000	$ 840,000	$ 1,230,000	$ 1,025,000	$ 2,005,000	$ 1,885,000	$ 440,000	$ 505,000	$ 910,000	$ 165,000	$ 255,000	$ 145,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000

Post License Incremental Operating and Capital Expense Vernon	22 2045	23 2046	24 2047	25 2048	26 2049	27 2050	28 2051	29 2052	30 2053	31 2054	32 2055	33 2056	34 2057	35 2058	36 2059	37 2060	38 2061	39 2062	40 2063
Cultural - Historic Resources Enhancement Measures																			
Cultural Resources - Phase 1B complete surveys	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements		$ 5,000		$ 5,000		$ 5,000		$ 5,000		$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	$ -
Cultural and Historic fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishery and Aquatic Resource Enhancement Measures																			
Evaluate whether fish are trapped behind collection gallery below powerhouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Implement solution if fish are trapped behind collection gallery	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Implement Improvements to Counting window and room	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitor Fishlader use by Eel and Sea Lamprey	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fishladder Hydraulic Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Upstream Fish Ladder Modifications (consult, design,install)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) below station or in ladder	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishladder Operation additional O&M	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Eel Ramp O&M and fish handling	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Impoundment Shad/Eel DS passage route studies	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hydraulic Study above the dam for downstream passage design/options	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shad/ElDownstream Fish Passage Modifications	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shad/Eel Downstream Passage improvement effectiveness evaluations	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Repair or Replace Fish Trap	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recreation Resource Enhancement Measures																			
Existing Recreation Improvements Design and Permitting																			
Upstream Portage - new floating dock, pathway and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Downstream Portage - Trail improvement, new stairs, path and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gov. Hunt/Vernon Glen-ADA Improvements to Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stebbins Island Canoe Camp site rehabilitation and improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Visitor Fish Ladder Window - update window, lighting, ADA accessibility	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Water Resources - Operations																			
WSE monitoring Inflow forecasting equipment and installation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Total Vernon Opex (2020$'s)																			
Total Vernon Capex (2020$'s)																			
Total Vernon Opex & CapEx (2020$'s)																			
	$ 155,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 155,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000