

Appendix B
Annual Estimated FY07 Cost for WSDOT S7. Stormwater Monitoring Sampling
Does not include BMP Sampling

Cost is ANNUAL Cost , Based on 11 sampling sites/yr with toxicity at 3 sites/yr

Field Equipment and Expenses	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
ISCO - 6712 Composite Sampler	11	2,795.00	30,745.00
Automated Flow Module - Bubble730	11	1,845.00	20,295.00
Rechargeable Battery	15	50.00	750.00
Disposable field equipment (gloves, deionized water, detergents) 11 sites 15x/yr	11	500.00	5,500.00
Reusable field equipment (5-gallon buckets, spray bottles, coolers, field notebooks) 15x/yr	1	2,000.00	2,000.00
Strainer	11	45.00	495.00
Mounting equipment	11	300.00	3,300.00
ISCO FlowLink5 Software	1	1,000.00	1,000.00
Data Transfer Unit (DTU)	1	1,000.00	1,000.00
Grab sampling equipment extention pole	1	50.00	50.00
<i>Subtotal field equipment and expenses</i>			\$ 65,135.00
Sediment Sampling			
	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
Sediment traps - 4 per site	44	165.00	7,260.00
Sediment trap mount	11	300.00	3,300.00
Sediment trap installation and recovery (sampling) - 11 sites, 2hrs each site, 2x year)*	2 employees	\$35/hr	1,540.00
<i>Subtotal sediment sampling + equipment</i>			\$ 12,100.00
Stormwater Monitoring			
	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
Storm event sampling (composite and grab) - 11 sites 12 hrs/storm (15x/year)	6 employees	\$35/hr	37,800.00
Equipment installation and break down, training staff and confined space entry (if needed) 16 hours	6 employees	\$35/hr	3,360.00
Confined space entry equipment (if needed)	1	800.00	800.00
Storm forecasting and decision-making - 5hrs/week - 52.14 weeks	1 employee	\$35/hr	9,124.50
Records management - analytical data, annual reporting, data sheet checks (5hr/week) govt employee rate	1 employee	\$35/hr	9,124.50
Data verification and validation (upon analytical data receipt) 10hr/month - govt employee rate	1 employee	\$35/hr	4,200.00

<i>Subtotal Stormwater Monitoring</i>			\$ 64,409.00
*Sediment trap installation cost worked into equipment set-up if confined space entry is required			
Toxicity Sampling	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
Refrigerated Sampler Rental - 1/yr - one week rental	1	1,000.00	1,000.00
Equipment installation and break down, confined space entry (if needed) 16 hours	2 employees	\$35/hr	2,240.00
Storm event sampling including chemistry sampling (cost includes 2 event, 12 hours per event)	2 employees	\$35/hr	1,680.00
Reusable and disposable equipment	1	250.00	250.00
<i>Subtotal Toxicity Sampling</i>			\$ 5,170.00
Laboratory Analytical Costs			
<i>Stormwater Monitoring General Chemistry - Based on 11 Sites - 14 events per year</i>	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
TSS	154	18.00	2,772.00
Chloride	154	20.00	3,080.00
temperature	154	20.00	3,080.00
nitrate nitrite	154	25.00	3,850.00
total phosphorus	154	30.00	4,620.00
TKN	154	32.00	4,928.00
ortho phosphorus	154	20.00	3,080.00
MBAS	154	175.00	26,950.00
metals (total and dissolved zinc, lead, copper and cadmium)	154	80.00	12,320.00
PAHs	154	260.00	40,040.00
Phthalates	154	315.00	48,510.00
Pesticides	154	400.00	61,600.00
Fecal coliform	154	42.00	6,468.00
TPH Dx and Gx	154	170.00	26,180.00
<i>Subtotal Analytical for Stormwater Monitoring</i>			\$ 247,478.00
<i>Toxicity Analysis and Chemical Analysis- 3 sites once per year</i>	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
Conductivity	3	10.00	30.00
Chloride	3	20.00	60.00
Hardness	3	18.00	54.00
Methylene blue activating substances	3	175.00	525.00

Total phosphorus	3	30.00	90.00
Orthophosphorus	3	20.00	60.00
Nitrate/Nitrite	3	25.00	75.00
Total Kjeldahl nitrogen	3	32.00	96.00
Metals (Zn, pb, cu, cd and mercury)	3	110.00	330.00
Polyaromatic hydrocarbons	3	260.00	780.00
TPH including Dx and Gx	3	170.00	510.00
Pesticides (which ones?)	3	400.00	1,200.00
Phthalates	3	315.00	945.00
7-day test	3	650.00	1,950.00
Egg/yolk testing			
<i>Subtotal Analytical for Chemical Analysis as Part of Toxicity Testing</i>			\$ 6,705.00
Quality Control Samples	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
QC samples (duplicates only) from stormwater monitoring (11 sites, 15x/yr) using average of each cost above.	165	114.00	18,810.00
QC samples (equipment blanks only) collected 2x/year and analyzed for all above parameters	4	1,607.00	6,428.00
<i>Subtotal Quality Control Samples</i>			<u>\$ 25,238.00</u>
Sediment Samples	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
Percent Solids	11	10.00	110.00
Phenolics	11	56.00	616.00
Total metals (Cd, Cu, Pb, Zn)	11	80.00	880.00
Mercury (requires prep)	11	40.00	440.00
PCBs and Pesticides	11	515.00	5,665.00
Pesticides, phthalates	11	325.00	3,575.00
Particle size distribution	11	75.00	825.00
Total organic carbon	11	50.00	550.00
NWTPH-Dx and Gx	11	170.00	1,870.00
Field/Lab QA/QC (additional 20% for metals and organics)	11	147.00	147.00
<i>subtotal Sediment Samples</i>			<u>\$ 14,678.00</u>
Grand Total			\$ 440,913.00

* Some parameters such as temperature, pH, conductivity can be measured in the field using field instruments rather having the laboratory run analysis on them.