

TABLE 3.3A
WATER QUALITY INDICATORS
COST COMPARISON

| INDICATOR/ BASIS FOR COST | IMPLEMENTATION COSTS | NOTES |
|--|---|---|
| <p>(1) <i>Water Quality Constituent Pollutant Monitoring</i></p> <ul style="list-style-type: none"> • Per site, one person at each site • Sampling site accessible from land • Conventional pollutants* and physical parameters (pH, temperature, conductivity) only • Four hour sampling event • Single composited sample provided for laboratory analysis • Weir or flume used to establish stage-discharge relationship • Stage recorded during monitoring event to determine flow • Grabs sample collected manually • Composite aliquots collected using automated sampler • Compositing based on constant time-volume proportional to flow increment or rate relationship • Cost includes analysis to compile and arrange data | <p>\$700 - \$850 per station, per storm event</p> | <p>Cost to set-up station (installation and calibration of weir or flume; development of stage discharge relationship; acquisition of automated samplers and DO, temperature, conductivity, and pH meters; acquisition of reagents, sampling buckets, etc.) not included in cost estimate. Set up costs (based on the above-listed assumptions) will be on the average of \$7,000 - \$9,000 dollars per station. Cost may be reduced by using same sampler at different stations during different storm events and/or by using alternative methods to determine flow (i.e., USGS data).</p> <p>*Conventional pollutants include those typically reported as pollutants of concern in "normal urban runoff"--(e.g., TKN, nitrate + nitrite, ammonia nitrogen, TP, ortho-phosphate, cadmium, copper, lead, zinc (both total and dissolved), TSS, BOD₅, COD)(Strecker 1995)</p> |
| <p>(2) <i>Toxicity Testing</i></p> <ul style="list-style-type: none"> • Per sampling event test, assumes 10 replicate samples collected and analyzed • Short term, chronic 7 day toxicity test using <i>Ceriodaphnia dubia</i> or <i>Pimephales promelas</i> | <p>\$2,500 - \$3,750 per sampling event</p> | <p>Cost estimate does not include sampling/collection costs. Cost is based on laboratory analysis only. In-situ and/or flow through testing involves sophisticated equipment and station set-up which can dramatically add to cost.</p> |

TABLE 3.3A
WATER QUALITY INDICATORS
COST COMPARISON

| INDICATOR/ BASIS FOR COST | IMPLEMENTATION COSTS | NOTES |
|---|---|--|
| <p>(3) <i>Nonpoint Source Loadings</i></p> <p>Method #1: Sub-watershed assessment with computer modeling</p> <ul style="list-style-type: none"> • Water quality data collection not included • Land use/imperviousness data collection not included <p>Method #2: Simple method, EMC based on land use</p> <ul style="list-style-type: none"> • Land use/imperviousness data collection not included | <p>Method #1: \$70,000 - \$84,000 per sub-watershed</p> <p>Method #2: \$500 - \$1,000 per sub-watershed</p> | <p>Estimates for water quality data collection costs can be based on Water Quality Constituent Pollutant Monitoring costs. In Sub-watershed assumed to be approximately 5 square miles.</p> |
| <p>(4) <i>Exceedance Frequencies of Water Quality Standards</i></p> | <p>N/A</p> | <p>Costs associated with implementation of this indicator are assumed to be minimal. The most significant portion of the cost would be associated with data collection. The data required to implement this indicator is most likely collected as part of an ongoing baseflow and/or wet weather water quality monitoring program.</p> |
| <p>(5) <i>Sediment Contamination</i></p> <ul style="list-style-type: none"> • Per site • Conventional pollutants only* • Single sample collected and laboratory analysis • Interpretation of results not included | <p>\$450 - \$550 per sample</p> | <p>Cost estimate does not include sampling collection costs. *Conventional pollutants include those typically reported as pollutants of concern in "normal urban runoff"-(e.g., TKN, nitrate + nitrite, ammonia nitrogen, TP, ortho-phosphate, cadmium, copper, lead, zinc (both total and dissolved), TSS, BOD₅, COD)(Strecker 1995)</p> |
| <p>(6) <i>Human Health Criteria</i></p> <ul style="list-style-type: none"> • Annual cost • Based on shellfish bed or beach closures • Per growing area or beach, average 5 samples per year • Fifteen to twenty locations within each growing area • Two people monitoring, 8 hours per monitoring event | <p>\$5,250 - \$6,500 per area (beach)</p> | <p>Cost based on analysis of f. coli or E. coli samples.</p> |