



Estimated Costs for Watershed Assessments

Watershed extent is approximately equivalent to a HUC-14

For purposes of this cost sheet, HUC-14 = 50 sq. miles (32,000 acres) or 150 linear stream miles (792,000 feet)

Level I Assessment - \$15,000

A. *Fecal Coliform Bacteria (FCB) Source Assessment*

- Identification of potential animal feeding operations (AFOs) or “cattle-in-the-creek” sites using aerial photography and visual analysis of potential indicators scalable to the stream reach (less than a quarter section). Analysis of indicators focuses on sources in close proximity to streams and rivers, which are operationally defined by the assessor or are within 100 feet of streams or rivers.
- Identification of waste stabilization ponds and lagoons (municipal lagoons and those associated with AFOs).
- Identification of grassland/ pasture land use located within drainages and in close proximity to streams and rivers, as defined by the National Hydrography Dataset (NHD). Analyses of the 2001 National Land Cover Dataset (NLCD) using a GIS buffer operation to document the co-occurrence of grassland/ pasture located within a defined buffer distance of drainages, streams and rivers.

B. *Land Use/ Cover Buffer Analysis*

- Assessment of all land use/ cover located in close proximity to all drainages, streams and rivers, as defined by the NHD. Analyses of the 2001 NLCD using a buffer operation to document and evaluate all land use/ cover located within a defined buffer distance of drainages, streams and rivers.
- Analysis allows for derivation of the following products for end-user:
 - Breakdown of all watershed land use/ cover and comparison to buffer land use/ cover
 - Area calculation for riparian restoration sites (i.e., cultivated and developed land within a defined buffer distance of drainages, streams and rivers)
 - Area calculation for potential AFO sites (i.e., grassland/ pasture within defined buffer distance of drainages, streams and rivers)

C. *Stream Bank Stabilization Sites*

- Analysis of major stream bank stabilization sites using aerial photography. Sites exhibiting distinctive characteristics (e.g., steep slopes, sharp cut banks, lack of riparian buffer, etc.) are used to identify stream bank stabilization sites greater

than 500 feet in linear extent. More detailed analyses are possible, but cost adjustments may be necessary.

D. Basic Land Ownership Analysis

- Provides a basic map of land ownership throughout watershed, but only if land ownership data is available as GIS data at the county level.

E. Information and Education

- Provide the assessment data to the WRAPS group, conservation districts and other interested agencies and organizations. Help provide workshops in the watershed to relay the assessment findings and provide potential solutions. Provide the assessment info to others at meetings, workshops and tours. Place the assessment on a website and make it usable for anyone with a relatively new computer and internet service, including provision of training on its use.

Level II Assessment – Prices shown are in conjunction with Level I assessment being completed. Level II prices without a Level I assessment will be determined on a case by case basis.

A. Terrain Surface Analysis

Price = \$2500/ HUC-14

- GIS processing of 10 m resolution digital elevation models (DEM) to evaluate slope characteristics of landscape.
- Identification of terraced and non-terraced cropland.
- GIS analysis of watershed sinks or topographical depressions.
- Location of outlets to waterways and terraces identified in cultivated lands.
- Map co-occurrence of hydric soils and watershed sinks for potential constructed wetland/ retention cell sites.

B. RUSLE Soil Erosion Potential Analysis

Price = \$2500/ HUC-14

- Watershed scale analysis of soil erosion potential using the U.S. Department of Agriculture RUSLE calculation and GIS.
- Analysis can be adjusted to emphasize proximity to drainages, streams and rivers using a GIS map overlay procedure (e.g., land use/ cover located within 100 m of stream weighted more heavily to simulate importance of delivery potential)
- Output is a map product that identifies target areas for no-till or other BMP implementation (e.g., terraces).

C. Ephemeral Gully Identification

Price = \$2500/ HUC-14

- Identification of ephemeral gullies (i.e., gullies that form in cropland annually, but are cultivated) using aerial photography; will examine several scenes (e.g., 2004-2006 NAIP or orthophoto imagery) due to seasonal nature.
- Ephemeral gullies are lesser known contributors to sedimentation in streams, rivers, ponds and lakes (essentially tributaries or drainages to streams in cultivated lands), and represent areas where grassed waterways should likely be installed; may coincide with watershed or terrace outlets or watershed sink analysis.

D. Land Ownership Analysis for Identified Projects

Price = \$2500/ HUC-14

- Links basic land ownership information to identified projects (e.g., waste water stabilization ponds or lagoons, potential wetland project).
- Output of results in cumulative table of land owners linked to all identified projects completed for assessment.

E. Identification of Riparian Areas in Need of Protection

Price = \$2000/ HUC-14

- GIS analysis of the 2001 NLCD to evaluate buffer areas along drainages, streams and rivers, as defined by the NHD.
- Visual analysis of aerial photographs to evaluate stream bank stability and extent of riparian area.
- Output of results in both map and table format to identify land parcels of riparian land cover that are in need of protection.

F. Information and Education

- Will be the same as Level 1 to include these additional assessment types.

Level III Assessment – Prices shown are in conjunction with Level I assessment being completed. Level III prices without a Level I assessment will be determined on a case by case basis.

A. Hydrologic Assessment of Watershed Using Basic Inputs

Price = \$16,000/ HUC-14

- Hydrologic assessment of watershed using the Soil and Water Assessment Tool (SWAT) or other applicable models to evaluate alterations in native hydrograph resulting from anthropogenic changes (e.g., cultivation) using basic inputs associated with land use/ cover, management, surface water bodies, etc.

- Evaluation of potential management practices (e.g., wetland/ retention cell installations in watershed depression/ hydric soil areas) which might attenuate anthropogenic effects.

B. Hydrologic Assessment of Watershed Using Detailed Inputs

Price = Negotiable depending on level of detail requested and other assessment procedures combined in conjunction with this effort (i.e., some inputs may be available from previous assessment (e.g., extent of terraced and non-terraced cropland))

C. Hydrologic Assessment of Multiple HUC-14 Watersheds

Price = Negotiable depending on request. Modeling of multiple HUC-14 watersheds is more cost effective than a single watershed, so prices can be scaled accordingly. However, at too vast a scale, computing requirements diminish cost effectiveness.

D. Information and Education

- Will be the same as Level 1 to include these additional assessment types.