Lake Worth Watershed Protection Study

LAKE WORTH REGIONAL COORDINATION COMMITTEE

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Lake Worth Watershed

Legend
- Live Oak Outlet
- Silver Creek Outlet
- Watershed
- Live Oak
- Silver Creek
- Regional City Limits
- Fort Worth ETJ
Lake Depths Before Dredging
Lake Depths After Dredging
Pics of Dredge Operation
Pics of Dredge Disposal Site
Silver Creek Materials
Watershed Protection Drivers
Study goals

SOLUTIONS

Affordability
Acceptance
Effectiveness
Lake Worth watershed erodible soils
Approaches to be Studied

• Sedimentation forebays for Silver Creek and Live Oak watersheds
• Constructed wetlands for water quality polishing
• Watershed BMPs
• Plan for Watershed Monitoring
Sediment Modeling

Soil & Water Assessment Tool | SWAT

Ground surface topography

Water uses for crops, energy production and human consumption

OTHERS
Climate, tile drainage, tillage, point source reservoirs

MODELS CALIBRATION
- stream flow, nitrogen, phosphorus, and sediment loadings (USGS)
- crop yield (USDA)

Land use, crop rotation

Fertilizer

Sub basin

Soil type
In-lake Water Quality modeling

- BATHTUB
- Eutrophication-related water quality projections

**BATHTUB**

Model Uses: BATHTUB is a steady-state water quality model that simulates eutrophication-related water quality conditions in lakes and reservoirs.
Quarry Sedimentation Site Feasibility Analysis

- Silver Creek Materials (Live Oak Creek watershed)
- HJG Quarry (Silver Creek watershed)
Constructed Wetlands Feasibility Analysis
Watershed BMPs
Watershed Monitoring Plan
Feasibility Report Deliverable

• Sediment and nutrient loading existing conditions model

• Sediment and nutrient loading model with BMPs

• In-lake water quality model for existing and proposed approaches

• Conceptual costs for quarry sedimentation BMP alternatives

• Conceptual costs for constructed wetlands

• Next steps