North Central Texas
Water Quality Project

Selection and Prioritization of Best Management Practices

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Issues of Concern

- Excess Nutrients
  - Phosphorus
  - Nitrogen
- Sedimentation
- Run-off

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Cropland BMP's

- Filter Strips
- Contour Farming
- Terracing
- Grassed Waterways
- Crop Residue Management
- Cropland Conversion to Pasture
- Fertilizer/ Nutrient Management

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Filter Strips

- Vegetation filter strips work to prevent erosion and absorb nutrients

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Contour Farming

- Uses the natural landscape as a method of retaining nutrients and sediment

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Terracing

- Allows crops to grow with the natural landscape with minimal soil disruption

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Grassed Waterway

- Allow for the retention of sediment and nutrients within the crop area

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Crop Residue Management

- Tillage is minimized to allow for retention of nutrients in soil

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Cropland Conversion to Pasture

- Conversion of cropland to pasture decreases the need for nutrients and stabilizes top soil and ground cover

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Nutrient Management

- Precision application of fertilizers prevent excess nutrients from entering watershed

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Pasture and Rangeland BMP's

- Prescribed Grazing
- Fencing
- Water Facility
- Fertilizer/ Nutrient Management
- Pasture Planting
- Range Planting
- Grassed Waterway
- Riparian Buffer strips

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Prescribed Grazing

- Grazing rotation allows for retention of ground cover, nutrients, and soils

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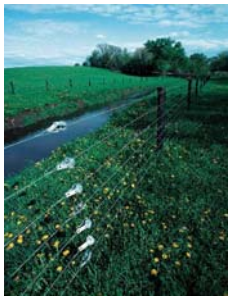
Fencing

- Fencing prevents livestock from entering sensitive riparian areas



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Water Facility

- A water tank centered at the confluence of four pastures allows for rotational grazing

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Pasture Planting

- Utilization of native grasses allow for a more hearty ground cover reducing run-off of sediment and nutrients

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Range Planting

- Supplementing range cover prevents degradation of lands and soils

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Riparian Buffer Strips

- Maintain vegetative cover near streambeds and drainages to reduce erosion and nutrient runoff into watershed

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Watershed Best Management Practices

- Implementation of structural or behavioral practices to reduce loadings of sediment or nutrients within the watershed
  - Channel

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Watershed BMP's

- Sediment Basins
- Channel Stabilization
- Streambank Protection
- Wetlands
- Grade Stabilization

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Sediment Basins

- Sediment basins allow for the collection of sediments and prevent further flow into the watershed

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Channel Stabilization

- Stabilization structures reduced erosion and sedimentation of streams and channels

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Streambank Protection

- Vegetation or constructed mechanism to prevent streambanks from degradation

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Wetland Creation/Protection

- Wetlands within the watershed serve as natural filters of sediment and nutrients

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Grade Stabilization Structures

- Maintain structure of reservoir by preventing erosion of grades

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Urban/ Issues of Concern

- Sediment
- Bacteria
- Nutrients
- Chemicals

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Why is Stormwater a Concern?

- Construction soil loss increases 20 times compared to regular land use
- Runoff leads to expensive erosion loss repairs
- Effects surface water bodies by allowing sediment and pollutants to enter

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Urban Best Management Practices

- Construction Site Management
- Sand Filter
- Detention Ponds
- Illegal Dumping Prevention
- Septic System Maintenance
- Residential Fertilizer Management
- Rainwater Harvesting
- Bioswales/Rain Gardens
- Pet Waste Management
- Soil Testing
- Constructed Wetlands

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Construction Site Management

- Seed Roadways and Dirt Piles
- Construction Sediment Control
- Permeable Paving Surfaces
- Storm Drain Blockage

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Sand Filters

- Sand filters trap sediment keeping it out of storm drains

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Detention Ponds

- Detention ponds trap excess run off to prevent flooding excess stormwater from entering watershed

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Illegal Dumping Prevention/Clean up

- Enforcement of anti dumping laws and clean up programs assist in keeping watersheds clean

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Septic System Maintenance

- Maintaining septic systems prevents the entry of bacteria and nutrients into stormwater run-off

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Residential Fertilizer Management

- Controlling amounts of lawn fertilizer and lawn clippings
- Prevents the runoff of nutrients and vegetation into storm drains

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Rainwater Harvesting

- Can prevent flooding and erosion
- Additional water supply
- Slows run-off and allows water to infiltrate into the ground

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Bioswales/Rain Gardens

- Swales constructed in low-lying areas slow runoff and encourage groundwater infiltration. Rain gardens detain run-off and allow for infiltration.

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Pet Waste

- Picking up yards and parks prevents stormwater from passing over pet waste and picking up bacteria and nutrients

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Soil Testing

- Determines soil type, texture, pH and nutrient content of urban soils to determine what actions are needed

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Constructed Wetlands

- Constructed wetlands retain stormwater and provide a natural filter and wildlife habitat

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Reservoir BMP's

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Hypolimnetic Aeration

- Mixing of colder water layer with air
- Reduces anoxic release of phosphorus from sediments

Hypolimnetic Release

- Release of colder, nutrient rich waters from reservoir
- Reduces opportunity for eutrophic conditions

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Alum Treatment

- Alum addition to floc phosphorus and reduce availability to algae

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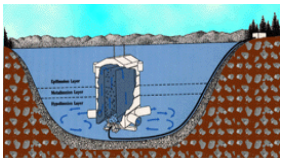
Water Column Mixing

- Water column mixing- disrupts blue-green algae cycle



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Dredging

- Removes sediment

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Chl'a' Segment 4: Reduction in SWAT *NPS File Loading – Median and Percentiles (91-01)