

North Central Texas Water Quality Project

Cedar Creek Reservoir Watershed Protection Plan Education and Outreach Plan

The Cedar Creek Reservoir Watershed Protection Plan Education & Outreach Work Group followed the U.S. Environmental Protection Agency's "Getting in Step" program to construct the Education & Outreach component of the Cedar Creek Reservoir Watershed Protection Plan. The program is designed to aid in the process of constructing a comprehensive strategy to increase public awareness and participation, as well as encourage local stewardship. The program steps are:

1. Define goals and objectives
2. Identify target audience
3. Determine message
4. Package materials
5. Distribute educational material and message
6. Evaluation

Driving Forces, Goals and Objectives

The **driving force** for the development of the Cedar Creek Reservoir Watershed education and outreach campaign is because the Cedar Creek Reservoir is an impaired water body that is currently not meeting state quality water quality standards. The **goal** of the Cedar Creek Reservoir Watershed educational program will share information regarding the status of the Cedar Creek Reservoir Watershed and future condition scenarios. The activities of people living in the watershed and around the lake will dictate the water quality within the reservoir. An educational program will utilize key messages to empower residents to accept information describing the status of the reservoir and implement best management practices on their property to limit availability and transport of contaminants to the reservoir. More specifically the nutrients phosphorus and nitrogen.

Objectives:

- Increase public awareness regarding water quality in Cedar Creek Reservoir.
- Increase natural resource literacy among residents within the Cedar Creek Reservoir Watershed.
- Identify groups within the watershed conducting environmental education programs.
- In cooperation with other Cedar Creek Reservoir Watershed Protection Plan work groups, develop educational strategies to increase awareness of contaminant sources and best management practices to limit contaminants reaching the reservoir.
- Identify and pursue sources of funding for water quality Education & Outreach.

Identifying and Analyzing Target Audiences

People's actions will define the long-term water quality status in the reservoir. A variety of audiences will be targeted during the educational program to publish and share information with the public.

- Agricultural producers (Farmers, Ranchers and Wildlife Managers)
- Small acreage landowners
- Sportsmen
- Ecotourism
- Youth
- Homeowners
- Greenspace managers:
 - Landscapers
 - Golf course managers
 - Park and Recreation staff
- Businesses
- Developers
- Influential people and organizations
 - Elected officials such as county judges, county commissioners, city mayors and council members, state legislature or congressional representatives
 - Civic organizations such as the Rotary and Lions Clubs, Junior League, Knights of Columbus
 - Media personnel
 - City managers
 - Chamber of commerce
 - Business and community leaders
 - Water supply corporations
 - Realtors

Message Development and Delivery

These messages address the overall Education & Outreach objectives and emphasize the value of the natural resources associated with the Cedar Creek Reservoir Watershed, its problems and the measures that can bring about solutions.

Messages defining the **value** of the natural resources include:

- Implementing soil conservation practices on your property will maintain your soil health and productivity.
- Implementing landscape grass mulching will improve landscape health.
- Anglers using the Cedar Creek reservoir brought \$1.6 million dollars in direct expenditures to the area between June 1, 2007 and May 31, 2008 (Texas Parks and Wildlife).

- Property values surrounding the lake will be maintained by having an esthetically pleasing lake.
- Lake is a valuable water supply for the Dallas-Fort Worth area.
- Depressed property values and sales tax revenue losses from decreased ecotourism will impact availability of county services or require increased taxing to maintain services.
- Improved riparian corridors along streams can increase local wildlife resources.
- Wetland habitat development increases birding and migratory bird resources.
- Implementing low impact development practices can improve local beautification, scenic value and quality of life in the region.

Messages defining the **problems** include:

- What is the Cedar Creek Reservoir Watershed?
- What is the current water quality situation in the Cedar Creek Reservoir Watershed?
- Contaminants of concern for the lake:
 - Sediment
 - Nitrogen
 - Phosphorous
- Sediment is filling the lake and reducing the water holding capacity of the reservoir
- Elevated nutrients (nitrogen and phosphorous) levels are increasing algae growth thereby reducing water quality and increasing chlorophyll a levels.
- Trash and household/lawn/agricultural chemicals are impacting water quality in the watershed.
- Increased urbanization and impervious surfaces is increasing the flow of water thereby increasing stream degradation and causing sediment transport within the watershed.

Messages defining the recommended **solutions** include:

- Improved agricultural management designed to diminish pollutants (sediment, nitrogen, phosphorus) from agricultural activities in the watershed will reduce loading into Cedar Creek Reservoir
- Improved urban stormwater management designed to diminish pollutants (sediment, nitrogen, phosphorus, etc.) from urban areas flowing into our streams, creeks and rivers and eventually to our reservoir
- Improved management of home landscapes by individual homeowners to reduce the amount of fertilizer being applied
- Newly enacted city ordinances, county and watershed rules to prevent the pollution of the Cedar Creek Reservoir Watershed
- Enhanced wastewater infrastructure for municipalities and rural communities in the watershed will reduce pollutants in Cedar Creek Reservoir Watershed

- Water quality monitoring to evaluate the condition of Cedar Creek Reservoir Watershed and to gain additional knowledge of the pollutant sources and water quality problems in Cedar Creek Reservoir

Messages defining what **individuals can do to help** include:

- Find out where you live in relation to the Cedar Creek Reservoir Watershed
- Become familiar with the Cedar Creek Reservoir Watershed
- Get a soil test
- Install a rain barrel or incorporate a rainwater harvesting system at your home or business to reduce stormwater, a potential source of pollution and erosion
- Ask your county Extension agent or local landscape supplier on proper fertilizers and pesticides for your yard to reduce excess phosphorous from reaching the reservoir
- Pick up after your pet
- Install Best Management Practices on your property/land to reduce the risk of soil erosion
- Contact the local Soil and Water Conservation District on funding opportunities for BMP implementation
- Ask your county and city elected officials to address pollution issues within your community
- Ask your county and city elected officials for recycling options in counties that have not yet adopted these practices
- Support local efforts to repair or replace outdated wastewater treatment facilities and infrastructure
- Volunteer for environmental projects in your community, such as local trash cleanups and habitat restoration
- Volunteer for, or encourage storm drain labeling in your community

The Cedar Creek Reservoir Watershed Education and Outreach Plan

Strategy 1 – Establish a Brand

Strategy 2 – Deliver Basic Facts about the Cedar Creek Reservoir Watershed

Objectives:

- Distribute the basic facts about the Cedar Creek Reservoir Watershed to targeted audiences
- Develop campaign brochures that include numerous photographs, illustrations, simple graphics, maps and easily read text
- Develop different presentations for targeted audiences
- Create fact sheets and FAQs (Frequently Asked Questions)
- Produce a video

Strategy 3 – Increase Awareness and Community Involvement in the Cedar Creek Reservoir Watershed Protection Plan

Objectives:

- Raise awareness of the Cedar Creek Reservoir Watershed Protection Plan by utilizing television, radio, signs and targeted advertising strategies
- Seek grants to develop and distribute television advertisements
- Seek out and collaborate with other groups developing environmental Public Service Announcements (PSAs)
- Work to have roadway signage to indicate the presence of the Cedar Creek Reservoir Watershed
- Work with communities within the watershed to label storm drains to increase awareness between stormwater, pollutants and the reservoir
- Use many different methods of both direct and indirect education to reach all groups within the Cedar Creek Reservoir Watershed through:
 - Direct Educational Methods:
 - Presentations at local meetings
 - Booth at local community activities
 - Hosting specific meetings, workshops, conferences
 - Direct postcard or letter to people
 - Electronic mailed letter
 - Site visit to local property
 - Construct demonstrations of recommended best management practices
 - Tours of best management practice demonstrations
 - Methods of In-Direct Mass Education
 - Articles in newspaper, newsletter, blog
 - Public service announcements implemented through radio or television
 - Utility bill stuffers or direct message printing
 - Educational displays at local businesses frequented by the target audience

Strategy 4 – Develop Partnerships for Message Distribution

Objectives:

- Develop partnership with business, community-based organizations and Non-Governmental Agencies (NGO's) supporting environmental education and conservation programs for message distribution including:
 - Agricultural Producers
 - Texas Farm Bureau
 - Local Soil and Water Conservation District
 - Natural Resources Conservation Service District Office
 - Texas Department of Agriculture
 - Texas AgriLife Extension Service

- Texas Pest Management Association (TPMA)
- Small Acreage Landowners
 - Local Soil and Water Conservation District
 - Natural Resources Conservation Service District Office
 - Texas Department of Agriculture
 - Texas AgriLife Extension Service
- Sportsmen
 - Bass Anglers Sportsmen Society (B.A.S.S.)
 - Texas Trophy Hunters Association
 - Texas State Rifle Association (TSRA)
 - Ducks Unlimited
 - Dallas Safari Club
 - Texas Chapter of American Fisheries
- Ecotourism Vendors
 - Chambers of Commerce
 - Marinas
 - Lodging
- Schools and Educational Organizations
 - 4-H
 - FFA
 - Girl Scouts
 - Boy Scouts
 - School Carnivals and Community Festivals
 - Teachers
- Homeowners
 - Master Gardeners
 - Master Naturalists
 - Homeowners Associations
 - Church Organizations
- Greenspace Management
 - Landscapers
 - Golf Course Managers
 - Parks and Recreation Staff
- Developers
- Environmental Groups
 - Sierra Club
 - Environmental Co-Op
 - Texas Wildlife Association
 - Trinity River Environmental Education Society (TREES)
 - Keep Texas Beautiful
 - Trinity Basin Conservation Foundation
- Influential People and Organizations
 - Elected officials such as county judges, county commissioners, city mayors and council members, state legislature or congressional representatives.

- Civic organizations such as the Rotary and Lions Clubs, Junior League, Knights of Columbus.
 - Media personnel
 - City managers
 - Chambers of Commerce
 - Business and community leaders
 - Water supply corporations
 - Realtors
- Develop an outreach campaign targeting local businesses and community based organizations to:
 - Inform them of the Cedar Creek Reservoir Watershed Protection Plan
 - Inform them how the water quality problems associated with the Cedar Creek Reservoir will impact them
 - Give them ways they can aid both personally or professionally, while stressing their venue being a point of distribution for information on the Cedar Creek Reservoir Watershed Protection Plan and water quality education material

Strategy 5 – Create Micro-campaigns for Specific Target Audiences

1. Micro-campaign Target Audience A: Agricultural Producers

Objectives:

- Educate agricultural producers on more environmentally responsible application levels and rates of fertilizer
 - Promote conservation programs sponsored by NRCS, S&WCD and other organizations that provide technical assistance and funding for the implementation of conservation measure and practices
 - Sponsor soil testing campaigns
 - Construct BMP demonstrations as a learning tool
 - Utilize fact sheets, presentations and other information to educate agricultural producers on:
 - Agricultural BMPs
 - Cost and Benefits of implementing BMPs
 - Stocking rates and overgrazing
- Through the following avenues:
- AgriLife Extension sponsored events and field days
 - NRCS and S&WCD Mail outs
 - AgriLife Extension Newsletters
 - Ranch and Rural Magazine
 - Country World News

2. Micro-campaign Target Audience B:

Small Acreage Landowners

Objectives:

- Educate small acreage landowners on land stewardship
- Promote conservation programs sponsored by NRCS, S&WCD and other organizations that provide technical assistance and funding for the implementation of conservation measure and practices
- Sponsor soil testing campaigns
- Construct BMP demonstrations as a learning tool
- Utilize fact sheets, presentations and other information to educate small acreage landowners on:
 - Land stewardship
 - Septic system maintenance
 - Stocking rates and overgrazing
 - Pond management
 - When to fertilize and what with
 - Pasture planting

Through the following avenues:

- Web based programming: Educating Small Acreage Landowners Extension Program
- AgriLife Extension sponsored events and field days
- NRCS and S&WCD Mail outs
- AgriLife Extension Newsletters

3. Micro-campaign Target Audience C: Sportsmen

Objectives:

- Distribute brochures at local fishing support businesses such as bait stores, marinas, sporting goods stores, fishing guide businesses, boat dealerships, etc.
- Include a specific task that the fisherman can do to help do their part to improve the Cedar Creek Reservoir Watershed
- Organize a fishing tournament on Cedar Creek Reservoir and distribute fact sheets to each fisherman with their entry
- Organize fisherman for clean up days

4. Micro-campaign Target Audience D: Ecotourism Vendors

Objectives:

- Compile and keep a current database of ecotourism vendors
- Host an informational reception or luncheon for the vendors, including a presentation and invitation to participate in efforts to improve the water quality while participating in the ensuring the future of their livelihoods
- Include vendors in group emails and in updates from the Cedar Creek Reservoir Watershed Protection Plan
- Plan follow-up or semi-annual gatherings for the group to discuss the progress and environmental concerns

5. Micro-campaign Target Audience E:
Schools and Educational Organizations

Objectives:

- Identify all after-school programs including:
 - Learning Centers
 - Private After-School Care
 - School Extracurricular Programs (i.e. Rodeo Club, Science Club, etc.)
- Work with TREES and other local organizations to create a youth-based learning curriculum for the Cedar Creek Reservoir Watershed
- Distribute TREES “Talking Trash” DVDs to schools to teach students the effects of pollution on our watersheds
- Use schools as a distribution point for basic information about the Cedar Creek Reservoir Watershed to distribute to the families of school children through “back-pack stuffers”
- Reach out to area science teachers through the regional education service center to provide basic information on the Cedar Creek Reservoir Watershed Protection Plan and offer suggestions for school projects they can incorporate into their lessons to raise interest among students in their role in helping the Cedar Creek Watershed
- Use stream trailers, rainfall simulators, rainwater harvesting table top display, enviroscape, and dual flush toilet as hands-on visual teaching tools to raise interest and awareness of the Cedar Creek Reservoir Watershed current and future condition

6. Micro-campaign Target Audience F:
Gardeners/Homeowners

Objectives:

- Educate large retail businesses of garden supplies or other fertilizer vendors on more environmentally responsible application levels and rates
- Promote neighborhood association recognition for environmentally friendly landscaping

- Utilize fact sheets, presentations and other information to educate homeowners on:

- Rainwater harvesting
- Stormwater management
- Pet waste management
- Proper lawn fertilization
- Urban landscape management
- Onsite wastewater treatment
- Gray water
- Soil Testing
- Grass clipping/leave disposal

Through the following avenues:

- HOA's and other local meetings
- Utility bill mailings
- Tax Bills
- Water supply corporations
- Master Gardener programs

7. Micro-campaign Target Audience G:
Greenspace Management/Developers

Objectives:

- Educate greenspace managers on environmentally responsible application levels and rates of fertilizer
- Sponsor soil testing campaigns
- Develop demonstrations of BMPs for visual reference of practices that demonstrate the effectiveness of reducing runoff and pollution transport
- Develop a listing of stormwater control and green infrastructure measures developers can use and implement into designing a new neighborhood

8. Micro-campaign Target Audience H:
Influential People and Organizations

Objectives:

- Seek frequent media contact through
 - Newspapers: The Monitor – Forney, The Pilot, Kaufman County Life
 - Press Releases
 - TV News: Channel 5 and 11
 - Environmental Co-Op
 - Chamber of Commerce: Listing of Events
 - Radio: KLM, Cedar Creek Area
 - Utility bill stuffers or direct message printing

Strategy 6 – Establish a Practice of Ongoing Campaign Evaluation

Strategy 7 – Collaborate with Governmental Agencies Offering Environmental E&O

Groups to Collaborate with:

- United States Environmental Protection Agency (EPA)
- Texas State Soil and Water Conservation Board (TSSWCB)
- Texas Commission on Environmental Quality (TCEQ)
 - Clean Texas Greenscapes
- Texas Department of Agriculture (TDA)
 - Stop the Drop
- Texas Water Development Board
 - The Water Smart Campaign
- Water Wise Council of Texas
- United States Department of Agriculture – Natural Resource Conservation Service (USDA-NRCS)
- Texas Parks and Wildlife Department (TPWD)
- Soil and Water Conservation Districts (SWCD)
- Trinity River Authority (TRA)
- Tarrant Regional Water District (TRWD)
- East Texas Council of Government
- North-Central Texas Council of Government (NCTCOG)
- Texas AgriLife Extension Service
- Texas AgriLife Research

Outreach and Education Strategy

Table 1 General watershed education and outreach protocol.

Target Audience	Responsible Organization	Action	Conveyance
General Watershed Awareness	Kaufman County Environmental Co-op	Knowledge of watershed definition and function	Signage Radio Newspapers Festivals, public gatherings, Speaking engagements
		Watershed address and boundaries	
		Point and Non-point source pollution	
		Stewardship and individual responsibility	
		Awareness of Cedar Creek Watershed Planning Efforts	

Table 2 Targeted Micro-campaigns for watershed education and outreach

Target Audience	Responsible Organization	Action	Conveyance
Agricultural Producers	Texas AgriLife Extension	Educate agricultural producers on more environmentally responsible application levels and rates of fertilizer	Workshops, one-on- one consultations, e mail or mailing
		Promote conservation programs sponsored by NRCS, SWCD and other organizations that provide technical assistance and funding for the implementation of conservation measure and practices	
		Sponsor soil testing campaigns	Homeowners Associations, Master Gardeners Associations
		Construct BMP demonstrations as a learning tool	Work with cities and counties to find suitable sites
		Utilize fact sheets, presentations and other information to educate agricultural producers on:	Workshops, one-on- one consultations, e mail or mailing
		Agricultural conservation practices	
		Cost and Benefits of implementing conservation practices	
		Stocking rates and overgrazing	
Stream protection			

Target Audience	Responsible Organization	Action	Conveyance
Small Acreage Landowners	Texas AgriLife Extension, Kaufman County Environmental Co-op	Construct BMP demonstrations as a learning tool	Cities and Counties to find proper locations
		Utilize fact sheets, presentations and other information to educate small acreage landowners on:	Workshops, one-on- one consultations, e mail or mailing
		Land stewardship	
		Septic system maintenance	
		Stocking rates and overgrazing	
		Pond management	
		When to fertilize and what with	
Pasture planting			

Sportsmen	Kaufman County Environmental Co-op	Distribute watershed informational brochures	Local fishing support businesses such as bait shops, marinas, sporting goods stores, fishing guides, boat dealerships, etc.
		Create a specific event or task to encourage angler ownership of the Cedar Creek and Watershed	Texas Parks & Wildlife, Cedar Creek Chamber of Commerce
		Organize a fishing tournament on Cedar Creek Reservoir and distribute fact sheets to each fisherman with their entry	
		Organize fisherman for clean up days	Local fishing and wildlife groups

Target Audience	Responsible Organization	Action	Conveyance
Schools and Youth Organizations	Kaufman County Environmental Coop	Identify all after-school programs including: Learning Centers Private After-School Care School Extracurricular Programs (i.e. Rodeo Club, Science Club, etc.)	Parents, school district, scout groups
		Create a youth-based learning curriculum for the Cedar Creek Reservoir Watershed	TREES (Trinity River Environmental Education Society)
		Distribute TREES "Talking Trash" DVDs to schools to teach students the effects of pollution on our watersheds	Local PTAs
		Use schools as a distribution point for basic information about the Cedar Creek Reservoir Watershed to distribute to the families of school children through "back-pack stuffers"	Local Science Teachers
		Reach out to area science teachers through the regional education service center to provide basic information on the Cedar Creek Watershed Protection Plan and offer suggestions for school projects they can incorporate into their lessons to raise interest among students in their role in helping the Cedar Creek Watershed	
Utilize stream trailers, rainfall simulators, rainwater harvesting table top display, Enviroscape, and dual flush toilet as hands-on visual teaching tools to raise interest and awareness of the Cedar Creek Watershed current and future conditions	Texas AgriLife Extension, Master Gardener Associations		

Target Audience	Responsible Organization	Action	Conveyance
Gardeners/ Homeowners	Texas AgriLife Extension, Kaufman County Environmental Co-op	Educate large retail businesses of garden supplies or other fertilizer vendors on more environmentally responsible application levels and rates	Workshops, one-on- one consultations, e mail or mailing
		Promote neighborhood association recognition for environmentally friendly landscaping	Workshops, one-on- one consultations, e mail or mailing, Homeowners Associations and other local meetings
		Utilize fact sheets, presentations and other information to educate homeowners on:	Workshops, one-on- one consultations, e mail or mailing, Homeowners Associations and other local meetings
		Rainwater harvesting	
		Stormwater management	Local municipalities, unincorporated lakeside communities
Pet waste disposal	Local animal control, veterinary clinics, animal rescue organizations, Homeowners Associations and other local meetings		

Target Audience	Responsible Organization	Action	Conveyance
Gardeners/ Homeowners	Texas AgriLife Extension, Kaufman County Environmental Co-op	Proper lawn fertilization	Workshops, one-on- one consultations, e mail or mailing, Homeowners Associations and other local meetings, Sponsor soil testing campaigns
		Urban landscape management	Workshops, one-on- one consultations, e mail or mailing, Homeowners Associations and other local meetings
		Onsite wastewater treatment	Workshops, one-on- one consultations, e mail or mailing
		Gray water	
		Soil Testing	Workshops, one-on- one consultations, e mail or mailing, Homeowners Associations and other local meetings, Sponsor soil testing campaigns
		Grass clipping/leave disposal	Workshops, one-on- one consultations, e mail or mailing, Homeowners Associations and other local meetings
		Water supply corporations	Utility bill mailings
		Tax Bills	Informational stuffers
		Master Gardener programs	Develop demonstrations of BMPs for visual reference of practices that demonstrate the effectiveness of reducing runoff and pollution transport

Target Audience	Responsible Organization	Action	Conveyance
Greenspace Management/Developers	Texas AgriLife Extension, Kaufman County Environmental Co-op	Develop a listing of stormwater control and green infrastructure measures developers can use and implement into designing a new neighborhood	Workshops, one-on- one consultations, e mail or mailing
			Press Releases to Newspapers: The Monitor – Forney, The Pilot, Kaufman County Life
		Golf Courses, parks, open space	Workshops, one-on- one consultations, e mail or mailing

Influential People and Organizations	Kaufman County Environmental Coop	TV News: Channel 5 and 11	Press releases, follow up contact
		Elected Leaders	Present WPP at City Council Meetings and Commissioners Courts
		Chamber of Commerce	Speaking engagements, endorsements
		Radio: KLM, Cedar Creek Area media	Press releases, follow up contact
		Water customers/ water supply corporations	Utility bill stuffers or direct message printing

Target Audience	Responsible Organization	Action	Conveyance
Collaborate with Governmental Agencies Offering Environmental E&O	Texas AgriLife Extension Service, Kaufman County Environmental Co-op	Clean Texas Greenscapes	water summit
		Texas Department of Agriculture (TDA)	
		Stop the Drop	
		Texas Water Development Board	
		The Water Smart Campaign	
		Water Wise Council of Texas	
		United States Department of Agriculture – Natural Resource Conservation Service field office(USDA-NRCS)	site demonstrations, one-on-one consultations
		Texas Parks and Wildlife Department (TPWD)	water summit
		Soil and Water Conservation Districts (SWCD)	site demonstrations, one-on-one consultations
		Trinity River Authority (TRA)	water summit
		Tarrant Regional Water District (TRWD)	Water summit, direct contact with WWTP operators and water customers
		East Texas Council of Governments	water summit
		North-Central Texas Council of Government (NCTCOG)	
		Texas AgriLife Extension Service	water summit, fact sheets, one-on-one consultations
		Texas AgriLife Research	Provide research opportunities for BMP installation
Kaufman County Environmental Co-op	Work through local cities and counties		
East Cedar Creek Freshwater Supply District	Develop wastewater education information for public distribution		

Establish a Practice of Ongoing Campaign Evaluation	Texas AgriLife Research	Stakeholder Surveys of knowledge Improvement	telephone, e mail, mail
		Stakeholder Surveys of behavioral change	
		Census of number of participants	Conduct during workshops, follow up e mail, telephone calls
		Number of practices Installed resulting from outreach	telephone, e mail, mail