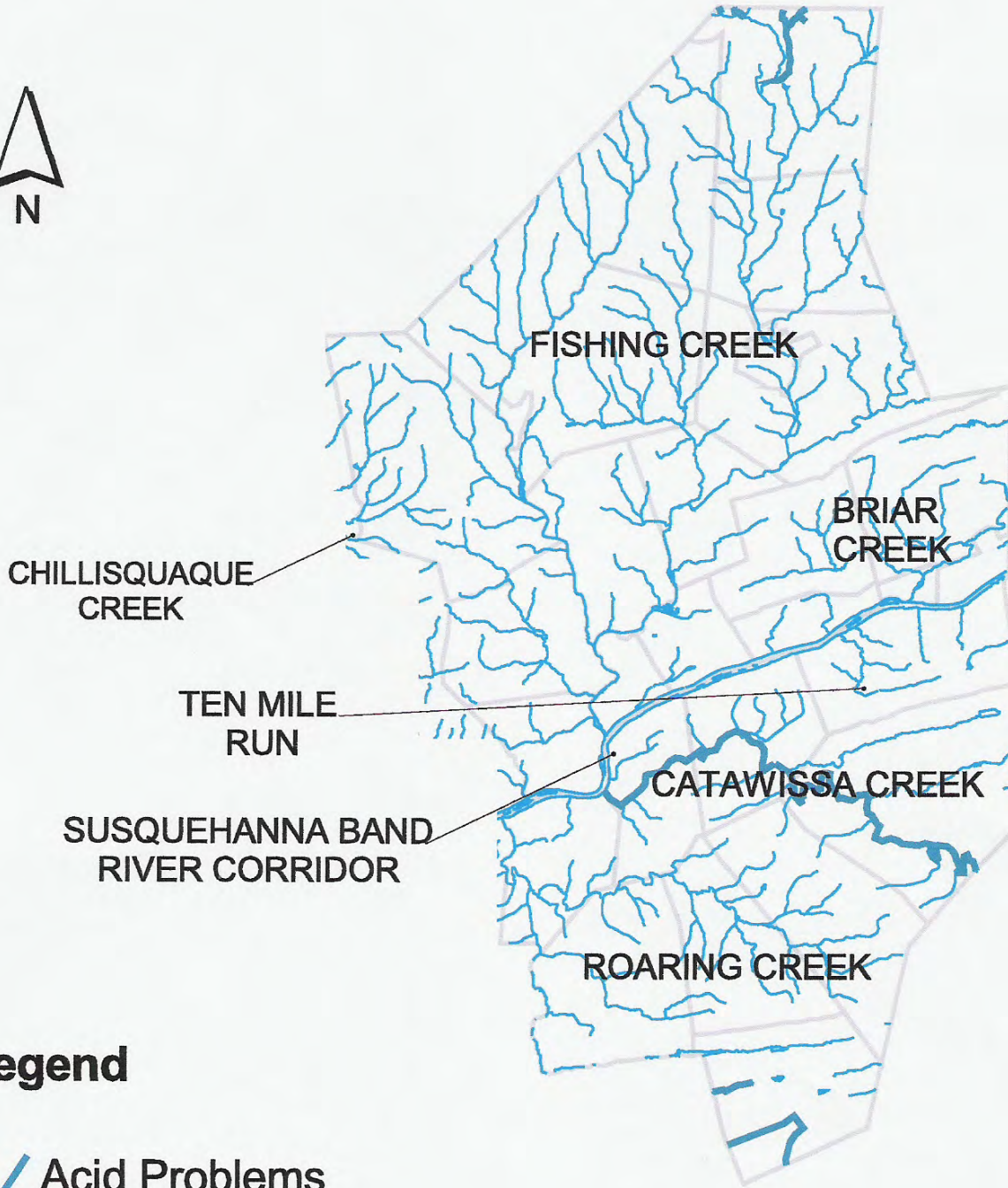


ACID RUNOFF STREAMS

Date: 2/3/2005



Legend

-  Acid Problems Streams
-  Municipalities



ADDENDUM #1

Minutes of initial Bay Tributary Strategy Meeting

CHESAPEAKE BAY TRIBUTARY STRATEGY

THESE IDEAS WERE DISCUSSED AT A MEETING ON NOVEMBER 19, 2004 BY THE FOLLOWING:

MARY WAGNER – COLUMBIA COUNTY CONSERVATION DISTRICT
DAVE HARTMAN – PENN STATE COOPERATIVE EXTENSION
STEPHANIE SINGER – COLUMBIA COUNTY CONSERVATION DISTRICT
SCOTT SINGER – NATURAL RESOURCES CONSERVATION SERVICE
ANDY WODEHOUSE – CHESAPEAKE BAY FOUNDATION
GEORGE HUBBARD - FARM SERVICE AGENCY
JOAN SATTLER – DEP
PAUL YANKOVICH – NATURAL RESOURCES CONSERVATION SERVICE
MATT DEIHL – COLUMBIA COUNTY CONSERVATION DISTRICT
BARRY TRAVELPIECE – COLUMBIA COUNTY CONSERVATION DISTRICT
SHANE KLEINER – NUTRIENT MANAGEMENT SPECIALIST

PROBLEMS

RESOURCES

FINANCES

PROBLEM AREAS:

AMD
AG IMPACTS

CATAWISSA - 303D, TMDL

AMD
AG IMPACTS - CROP PRODUCTION CAO's

ZONING, LAND USE - ACCELERATION OF DEVELOPMENT – LID
LOGGING
DIRT & GRAVEL ROADS
CREP UTILIZATION
BUFFERS, STREAM BANK

ROARING CREEK/SOUTH BRANCH - 303D?

WATERSHED ASSOCIATION ESTABLISHMENT
AG – EROSION CONTROL & CAO, NMP
SOURCE WATER PROTECTION
ZONING – SEWAGE, ETC.
RECREATION AREAS
DIRT & GRAVEL RD.
FARMLAND PRESERVATION

CHILLI - 303D

AG (AMISH), SEDIMENT, NUTRIENT, HERB/PESTICIDE, WETLAND
BUFFERING, HERD HEALTH, P-INDEX
DIRT & GRAVEL ROADS
FARMLAND PRESERVATION
PP&L
GRASS LANDS - TOTAL COUNTY

FISHING CREEK, LITTLE, HUNTINGTON - 303D

ACT 167, STORMWATER
DIRT & GRAVEL ROAD
AG LAND - CROPLAND RUNOFF – INFILTRATION, PRESERVATION,
EROSION, NMP
TIMER HARVESTING
ACID RAIN
LAND DEVELOPMENT/ZONING
HOT SPOT TARGETING – AG
STREAM BANK EROSION
RIPARIAN BUFFERS
RECREATIONAL AREAS
DAMS

BRIAR CREEK

ZONING/PLANNING
DEVELOPMENT
WATERSHED GROUP FORMATION

STREAM BANK EROSION

URBAN STORMWATER
AG
TIMBER HARVESTING
FLOODING (WEST BRANCH)

SUSQUEHANNA BAND RIVER CORR.

URBAN STORMWATER/NUTRIENTS (Fertilizer, Pest/Herbicides)
SEWER
STREAM BANK STABILIZATION
GOLF COURSES AND OTHER CAMPUS PROPERTY
WATER USAGE QUANTITY & QUALITY

TECHNICAL RSSOURCES

CBT	RC&D
NRCS	SRBC
DEP	US FWS
PENN STATE EXTENSION	PPL
FSA	EPA
CBF	ARS
DCNR	MELLON FOUNDATION
GAME COMMISSION	CANNAAN VALLEY
FISH COMMISSION	SCHOOLS & COLLEGES
WATERSHED GROUPS/ SPECIALISTS	CCMA
DISTRICT	EQUIP DEALERS
TROUT UNLIMITED-DUCKS	PFB
COUNTY PLANNING COMM.	LOCAL CLUBS
PDA	TWP. & MUNICIPALITIES
LAND	LABOR FORCE \$
NPC	ACOE
PENNDOT	PHEASANTS FOREVER
NATURAL AREAS INVENTORY	BAMR
EPCAMR	WOODLAND OWNERS

FINANCIAL

GROWING GREENER (GRANTS)
EQUIP
FARM BILL
PP&L
CBF & PROGRAM

MELLON/PRIVATE INVESTORS
LAND OWNERS
COUNTY/STATE
PENNVEST
LEAGUE OF WOMEN VOTERS
RC&D
FSA
ACT 6
TROUT UNLIMITED
ACT 167
LEGISLATIVE APPROPRIATIONS
GRASS ROOTS CAMPAIGN
CONSERVATION DISTRICT
BAMR
AG CHOICE
PFB
PENNDOT – INTERSTATES & ROADS
LOCAL BUSINESS
DEP EE GRANT

WATERSHEDS

CATAWISSA CREEK WATERSHED

- The Catawissa Creek is identified on the 303.d List of Impaired Streams.
- TMDL (Total Maximum Daily Load) has been completed on the Catawissa Creek Watershed.
- By 2010, address agricultural impacts to watershed. Identify those agricultural areas that may be impacting the soil and water quality of the stream.
- Identify agricultural land and cropland areas to make sure they are not impacting streams.
- Identify agricultural impacts due to Concentrated Animal Operations, herd health, Nutrient Management Program requirements.
- Continue to support the CREP program including riparian buffers along the stream corridor to enhance water quality.
- Acid mine drainage is the major polluting factor of the Catawissa Creek.
- Work with local planning and agencies to establish sound land use practices.
- Promote Farmland Preservation to local landowners through the District and County Farmland Preservation Board by easement purchases.

- Identify roads causing pollution to the streams within the watershed that qualify for Dirt & Gravel Road funding to make roads environmentally sensitive.
- Identify any USDA, DCNR, or State Agency programs that could benefit the watershed such as: wetland protection or creation, wildlife enhancement, and animal and horse farm management.

ROARING CREEK/SOUTH BRANCH ROARING CREEK WATERSHED

- Identified as a High Quality Watershed within Chapter 93 guidelines.
- Establish a working watershed association.
- By 2010, address agricultural impacts to watershed. Identify those agricultural areas that may be impacting the soil and water quality of the stream.
- Identify agricultural land and cropland areas to make sure they are not impacting streams.
- Identify agricultural impacts due to Concentrated Animal Operations, herd health, Nutrient Management Program requirements.
- Work with local planning commissions and agencies to establish sound land use practices.
- Promote Farmland Preservation to local landowners through the District and Columbia County Farmland Preservation Board by purchasing easements.
- Identify roads causing pollution to the streams within the watershed that qualify for Dirt & Gravel Road funding to make roads environmentally sensitive.
- Identify any USDA, DCNR, or State Agency programs that could benefit the watershed such as: wetland protection or creation, wildlife enhancement, and animal and horse farm management.
- Source Water Protection.
- Identify impact of campgrounds on water quality through sewage concerns, buffering areas, and pollution.
- Identify the impact from Recreational Areas (Knoebels Grove), etc. on water quality, land use and pollution concerns.
- Work with DEP on attaining TMDL (Total Maximum Daily Load) completion on the watershed.

CHILLISQUAQUE WATERSHED

- The Chillisquaque Watershed is identified on the 303.d List of Impaired Streams.
- Work with DEP on attaining TMDL (Total Maximum Daily Load) completion on the watershed.
- Agricultural Impacts have a severe impact on the watershed. Some of the impacts include:
 - A. Amish Farms
 - B. Direct discharge of sediment
 - C. Herbicides and pesticide contributions to the soil.
- Identify agricultural impacts due to Concentrated Animal Operations, herd health, Nutrient Management Program/Act 6 requirements, rotational grazing.
- Work with established watershed association.
- Identify agricultural land and cropland areas to make sure they are not impacting streams.
- Control impacts from horse farms.
- Identify roads causing pollution to the streams within the watershed that qualify for Dirt & Gravel Road funding to make roads environmentally sensitive.
- Continue to support the CREP program including riparian buffers along the stream corridor to enhance water quality.
- Support economics through marketability of native grasses and Co-generation plants.

FISHING CREEK/LITTLE FISHING CREEK/HUNTINGTON CREEK WATERSHED

- Work with County/DEP to achieve Act 167 status within the watershed.
- Work with DEP on attaining TMDL (Total Maximum Daily Load) completion on the watershed.
- By 2010, address agricultural impacts to watershed. Identify those agricultural areas that may be impacting the soil and water quality of the stream.

- Identify agricultural land and cropland areas to make sure they are not impacting streams.
- Identify agricultural impacts due to Concentrated Animal Operations, herd health, Nutrient Management Program requirements.
- Continue to support the CREP program including riparian buffers along the stream corridor to enhance water quality.
- Identify roads causing pollution to the streams within the watershed that qualify for Dirt & Gravel Road funding to make roads environmentally sensitive.
- Address infiltration within developed areas.
- Identify the impact from Recreational Areas on water quality, land use and pollution concerns.
- Identify dams located on the streams for potential danger and work with agencies to have dams removed.
- Insure that proper erosion and sedimentation practices are conducted in Timber harvesting areas.
- Work with local planning commissions and agencies to establish sound land use practices.
- Work to prevent streambank erosion on land within the watershed.

BRIAR CREEK WATERSHED

- Establish a working watershed association.
- Work to prevent streambank erosion on land within the watershed.
- Work with local planning commissions and agencies to establish sound land use practices.
- Identify the impact from Recreational Areas on water quality, land use and pollution concerns.
- By 2010, address agricultural impacts to watershed. Identify those agricultural areas that may be impacting the soil and water quality of the stream.
- Identify agricultural land and cropland areas to make sure they are not impacting streams.

- Identify agricultural impacts due to Concentrated Animal Operations, herd health, Nutrient Management Program requirements.
- Continue to support the CREP program including riparian buffers along the stream corridor to enhance water quality.
- Identify roads causing pollution to the streams within the watershed that qualify for Dirt & Gravel Road funding to make roads environmentally sensitive.
- Address infiltration and urban Stormwater concerns within developed areas.
- Insure that proper erosion and sedimentation practices are conducted in Timber harvesting areas.

SUSQUEHANNA BAND RIVER CORRIDOR WATERSHED

- Address infiltration and urban Stormwater concerns within developed areas.
- Work with local planning commissions and agencies to establish sound land use practices.
- Work to prevent streambank erosion on land within the watershed.
- Identify the impact from Recreational Areas on water quality, land use and pollution concerns.
- Control of nutrients such as pesticides, herbicides, fertilizers used in urban areas such as:
 - Golf courses
 - Campuses
 - Bloomsburg Fair
- Source Water Protection.
- Monitoring of water usage (quantity and quality).
- PENN DOT

Addendum 2 – Minutes of the Chesapeake Bay Tributary Strategy Meeting
Held on January 23, 2007

People attending:

Mary Wagner – Columbia CCD
Stephanie Singer – Columbia CCD
Barry Travepiece – Columbia CCD

Cathy Haffner – Columbia CCD
Todd Rush – Columbia CCD
Dave Hartman – Penn State Cooperative Extension
George Hubbard – Farm Service Agency
Paul Yankovich – Natural Resource Conservation Service
Bob Hollenbach – PA Department of Environmental Protection
Ryan Koch – Pocono Northeast Resource Conservation & Development Council

Progress that has been made addressing the strategies currently listed in the Columbia County Chesapeake Bay Tributary Strategy (CBTS) was reviewed by the Columbia County Conservation District Staff. See attached reports.

Open discussion was held among the meeting attendees regarding new strategies to address non-point source pollution. Several topics were covered that are currently listed in the CBTS. They are: TMDLs, Storm Water Management and Logging E&S Education. Because these topics are currently listed in the CBTS they will not need to be added to the updated version. However, a greater emphasis will be placed on these strategies in the next two years.

The one new strategy discussed that will be added to the updated CBTS is erosion and nutrient pollution reduction on agricultural operations through the planting of long-term warm season grasses. It was decided that this strategy will be added to the current CBTS as a general method of promoting erosion and nutrient pollution reduction rather than as a specific program. By doing this, any number of different programs / grants can be developed using this strategy. This District will also be able to partner with other agencies seeking grants that will utilize this strategy. See the updated version of the Columbia County CBTS for the final wording of this strategy.

The Columbia County CBTS will continue to be reviewed every one to two years. This will insure that any new strategies or non-point source pollution issues that arise will be included in the plan.

Grants / Programs Generated Through the Columbia County Chesapeake Bay Tributary Strategy

No-Till Program 05' – 07'

Program pays a rental payment of \$25 an acre for two years on enrolled fields committed to no-tilling for four continuous years. The grant award was for \$5,000 to enroll 100 acres. Nine producers enrolled a total of 165 acres. \$3,250 of leftover BMP money was used to cover the extra acres. A no-till workshop was held in 2006. This addresses the Conservation Tillage / No-Till strategy under agriculture concerns.

No-Till Program 06' – 08'

Second grant awarded for \$10,470 to enroll 200 acres at the same rental payment and guidelines. There is also money to pay for soil test kits and a no-till workshop. 160 acres have been enrolled to date. A second annual no-till workshop was held in 2007. This addresses the Conservation Tillage / No-Till strategy under agriculture concerns.

Buffers / Border Program 05' – 07'

Program pays a rental payment of \$25 an acre for two years plus a \$25 establishment payment for replacing end-rows with permanent grass or hay strips. The program will also pay the same rates for vegetative buffers along streams. The buffers / borders must be maintained for five years. The grant award was for \$3,000 to establish 40 acres. 12 acres have been established by four producers. This addresses the End Rows / Grass Borders and Riparian Buffers / Restoration of Streambanks strategy under agriculture concerns.

Preside-dress Nitrogen Testing Program 06' – 08'

Program offers preside-dress nitrogen testing for enrolled corn acres. Soil test kits and Agronomy Guides are also given to producers. Nutrient balance sheets are developed for enrolled acres. 720 acres of the 2,500 acre goal have been enrolled by 5 producers. The grant award was for \$4,645 to purchase 250 soil test kits, 15 Agronomy Guides, a chlorophyll meter and hold a nutrient management workshop. This addresses the Nutrient Management Planning strategy under agriculture concerns.

Multi-County Crop Management Association Program 06' – 08'

This is a joint grant through the Columbia, Lycoming and Union County Conservation Districts. This grant offers producers a 50% cost share of the per acre fee charged by a CMA. It also covers an enrollment fee up to \$25 and 50% of the cost of soil testing up to \$90. The benefits offered to producers through a CMA are; soil testing, pest management, nutrient balancing, record keeping and crop yield monitoring. The grant award was for \$20,000 to be spent in the three counties. Lycoming CCD handles the financial aspects of this grant. Approximately 700 acres through five producers have been enrolled in Columbia County. This addresses the Nutrient Management Planning strategy under agriculture concerns.

Red Roof Horse Farm Grant 07' – 09'

The proposed project will reduce nutrient and sediment pollution by removing access by the horses from approximately 350 feet of stream, establishing a three-quarter acre vegetative buffer / filter area up slope from the stream. It will also control storm water runoff from entering two winter sacrifice areas through the use of two waterways and an underground tile drain, constructing a 275-foot reinforced animal walkway and developing a nutrient management plan for the operation. The grant award was for \$16,185 and will be used to cost-share at a rate of 80% / 20% the completion of the water quality BMPs previously listed.

This project will address four major goals of the Tributary Strategy; “hot spot” non-point source pollution areas will be addressed, horse farms and stream bank restoration projects in the Chillisquaque Watershed and nutrient management planning. The Chillisquaque Watershed is listed as impaired by agricultural nutrients and sediment.

ACRE Grant 06' – 08'

This grant was funded through the Agriculture Communities & Rural Environment legislation. \$23,850 was awarded to the Columbia, Montour and Northumberland County Conservation Districts to provide education on minimum agriculture erosion and sedimentation and manure management requirements to the Amish and Mennonite community in the Chillisquaque Watershed. 250 “Minimum Compliance Education Packets” have been produced and will be distributed at three winter meetings. Two Amish farmers will be working one on one with the Conservation Districts to implement recommendations from the packets. This addresses the over all theme of the Tributary Strategy, reducing non-point source sediment and nutrient pollution.

Additional Grants/Programs Generated Through the Columbia County Chesapeake Bay Tributary Strategy

- PA DEP Environmental Education Grant '05-'07: Grant for \$9,250.00 to development and implement environmental education related to the CCCD Tributary strategy.
- Formation of the Chesapeake Bay Tributary Strategy Education Committee
- Groundwater/ Well education- As part of the PSU Extension Master Well Owner program, 20 private wells owners were reached. The wells were tested for total coliform bacteria, *E.coli* bacteria, pH, lead, nitrate-nitrogen, arsenic, & triazine pesticides. The well owners were provided information about their well in regard proper care, maintenance, and possible treatment.
- Rain barrel Workshops (PACD mini-grant \$2, 400)
- Native Plant Demonstration and Workshop scheduled (PACD mini-grant \$2,000)
- Smart Growth Workshop scheduled
- Formation of Roaring Creek Valley Conservation Association
- Bugs, Birds, and Buffers Workshop scheduled (DEP EE mini-grant \$1,490)

Addendum 3 – Minutes of the Chesapeake Bay Tributary Strategy Meeting
Held on August 24, 2009

People attending:

Mary Wagner – Columbia CCD

Stephanie Singer – Columbia CCD

Barry Travelpiece – Columbia CCD

Cathy Haffner – Columbia CCD

Todd Rush – Columbia CCD

Paul Yankovich – Natural Resource Conservation Service

Bob Hollenbach – PA Department of Environmental Protection

Ryan Koch – Pocono Northeast Resource Conservation & Development Council

Progress that has been made addressing the strategies currently listed in the Columbia County Chesapeake Bay Tributary Strategy (CBTS) was reviewed by the Columbia County Conservation District Staff. See attached report “Grants / Programs Generated Through the Bay Tributary Strategy”. Other District progress mentioned at the meeting include; Rain Barrel and Native Plant Workshops, Watershed Tours, an Environmental Education Grant, Meaningful Watersheds Grant, the reassessment of Columbia County’s dirt and gravel roads, two new watershed groups (RCVCA – Roaring Creek and BCAWS – Briar Creek) have formed, Catawissa Creek acid mine drainage treatment systems have been installed and a reassessment is under way, a Restoration Plan and lime treatment is under way for the East Branch of Fishing Creek, there is also a TMDL for Fishing Creek currently being developed. Progress listed by other agencies included; NRCS has received additional funds for conservation work in the Chesapeake Bay Watershed, Catawissa Borough has completed a Source Water Protection Plan and the Pocono-Northeast RC&D has received a grant to install agriculture BMP’s on farms in several watersheds located in Columbia County as well as hosting a Flood Summit.

Open discussion was held among the meeting attendees regarding new strategies to address non-point source pollution and additional impacts to water quality in Columbia County. Two topics were covered that are currently listed in the CBTS. They are: Out-dated septic systems and maintaining existing forest along streams. Because these topics are currently listed in the CBTS they will not need to be added to the updated version. Impacts from increased oil and gas drilling and use of irrigation by farmers were also discussed. No new strategies were offered to address these issues beyond continuing to implement our delegated programs as a means to address any impacts that may arise.

The one new strategy discussed that will be added to the updated CBTS is to reexamine all impaired stream segments with in Columbia County. This will involve a visual assessment of the current conditions of the impaired areas and documenting what BMPs have been implemented since the segment was listed as impaired. This strategy will be listed under each section of the CBTS, Agriculture, Urban and Rural, since impairments are shown in each area of the County. See the updated version of the Columbia County CBTS for the final wording of this strategy.

Grants / Programs Generated Through the Bay Tributary Strategy

Chesapeake Bay Program Special Project Grants

	<u>Grant Total</u>	<u>Spent / Allocated to Date</u>
No-Till Program '05-'07	\$5,000.00	\$5,000.00
Extra BMP \$	\$3,250.00	\$3,250.00
No-Till Program '06-'08	\$10,470.00	\$10,333.21
No-Till Program '07-'09	\$10,470.00	\$10,470.00
No-Till Program '08-'10	\$10,000.00	\$6,600.00
Buffers / Borders '05-'07	\$3,000.00	\$1,072.88
Preside Dress N Testing '06-'08	\$4,645.00	\$4,387.50
MultiCounty CMA '06-'08	\$20,000.00	\$12,094.40
Red Roof Horse Farm '07-'09	\$16,185.00	\$16,185.00
Cover Crop '07-'09	\$15,000.00	\$12,200.00
Cover Crop '08-'10	\$25,000.00	\$24,986.00
Cover Crop '09-'11	\$15,000.00	\$0.00
Cropland Conversion Rotational Grazing '09-'11	\$10,000.00	\$10,000.00
MultiCounty Wetland Restoration '09-'11	\$30,000.00	\$30,000.00
Other Grants		
ACRE '06-'08	\$23,850.00	\$23,850.00
ARRA '09	\$229,257.00	\$229,257.00
	<u>\$431,127.00</u>	<u>\$399,685.99</u>

Agricultural Strategies¹

	<u>Goals²</u>	<u>Implemented³</u>
Conservation Tillage / No-Till	2,000 acres	697 acres
Nutrient Management	5,000 acres	3,811.5 acres
Cover Crops	2,000 acres	885.3 acres
Hot Spot Targets	n/a	1 project
End Rows / Grass Borders	100 acres	14.3 acres
Riparian Buffers / Streambank Restoration	150 acres 2 demo projects	1 acre 1 demo project
Educational Outreach	n/a	Several workshops, conferences and publications have been completed.

1. Note: This only includes acres, projects, etc. implemented through the Bay Special Projects Program.

2. Note: The goals listed here are projected to be completed with in 5 years of 2005.

3. Note: The implementation amounts listed have only been done by the Conservation District. Other agency's amounts are not included in these numbers.