

National Showcase Watersheds

About the National Showcase Watersheds:

In 1998 and 1999, a committee of federal agency experts in watershed-based restoration of stream corridors wrote and published an interagency manual on stream corridor restoration. At the same time, a growing interest in restoration and watershed protection resulted in government initiatives to promote restoration projects. As part of these initiatives, this federal restoration committee was directed to showcase the application of stream corridor restoration technology in 12 demonstration projects.

Nominations for showcase projects were accepted during 1998, and final selections were made in early 1999. The 12 sites were selected for their ability to showcase the application of stream corridor restoration technology and for improving the community, the environment, and water quality.

The selected projects represent a variety of geographic locations and conditions, a balance of management and design, strong local, tribal and state leadership, public and private land use mix, and partnerships in stream corridor restoration. This website celebrates these successful projects as examples of accomplishments through restoration.

The showcase watershed projects and their states are:

Duck Creek, AK
Big Nance Creek Watershed, AL
Gila River Corridor Recovery Project, AZ/NM
Suwanee River Watershed, GA/FL
Bear Creek Watershed, IA
Sun River Basin, MT
Blackfoot Watershed, MT
Carson River Watershed, NV
McCoy Creek Watershed, OR
Lititz Run Watershed Alliance, PA
White River Partnership Watershed Restoration Project, VT
Duwamish-Green River Watershed, WA

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Lititz Run Watershed

The Lititz Run Watershed Restoration Project has engaged citizens, scientists, and local and state government agencies as local watershed alliance partners in a coordinated set of 15 restoration projects in key locations throughout the watershed. This community is improving its water quality through a comprehensive long-term watershed management strategy that combined techniques in natural resource management, land use planning, education and community involvement in addressing non-point source pollution.

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 - [History of Lititz Run Restoration](#)
 - Project List:
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 - [Millport Conservancy](#)
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History of Lititz Run Watershed Restoration

1992	Restoration - Ed Hess Farm	Installed 100 feet of streambank fencing, bank stabilization , regrading, and reseedling.
1993	Restoration - Ed Hess Farm	Additional bank stabilization with rock and regrading. Instream habitat devices - Christmas tree deflectors, jack dams.
	Restoration - Banta Wetland Farm	Shrub and tree plantings
1994	Grant - National Trout Unlimited	Embrace A Stream Program Amount - \$5000
	Award - PA Trout	The Pennsylvania Trout best project award.
	Restoration - Art Hess Farm	Initiate work, 1000 linear feet of stream - bank stabilization with rock, fish cover structures, re- grading, and re-seeding. Stone walls built around a spring and rechanneled water discharge away from a manure storage area.

	Donation - Bilren Excavating	300 dump truck loads of rock stockpiled along the stream for future use.
	Restoration - Ed Hess Farm	2800 linear feet of streambank improvements - stabilizing with rock, mud sills, deflectors, tree plantings, regrading, reseeding, and tree and shrub plantings.
	Public Relations - Call of the Outdoors	Local television program feature.
	Community - LMHS Volunteers	Ten students from Lancaster Mennonite High School volunteered for two stream improvement work days.
	Proposal Submitted - Bioengineering	LandStudies, Inc. submitted a proposal for a 350 foot bioengineering project in Lititz Borough.
	Township Coordination	Watershed Planning discussions initiate with Lititz Borough and Warwick Township.
	Public Relations - TU Magazine	Feature article National Trout Unlimited magazine.
1995	Grant - Embrace a Stream	\$5000 - Embrace A Stream Award - Trout Unlimited
	Award - Diamond Spring	\$500 - Diamond Spring Water Quality Award
	Restoration - Wenrich Farm	500 linear feet of stream improvements - bank stabilization, mud sills, cattle crossings, tree plantings, retention basins, and re-seeding.

Restoration - Millport Conservancy	800 linear feet of stream improvements - rock and deflector installation, regrading, riparian buffer plantings, and reseedling. Mill Pond problem solving, coordination with PA Department of the Environment. Maintenance - Selective mowing and trimming was performed throughout the riparian plantings.
Restoration - John Ving Farm	1000 linear feet of stream improvements; 1400
Restoration - Smucker Farm	1400 linear feet steam improvements - rock and deflector installation, stream bank fencing, tree plantings, instream fish structures, cattle water access ramps, and regrading.
Restoration - Ed Hess Farm	Stream Improvements - instream deflectors and tree plantings.
Restoration - Art Hess Farm	Stream Improvements - instream deflectors and tree plantings.
Public Relations - Cable Network	Feature on Berks County Cable TV.
Public Relations - TU National	Second National Trout Unlimited feature
Planning - Lititz Run Riparian Park	Lititz Run Riparian Park concept (by LandStudies, Inc.) presented to Warwick Township and Warwick High School.
Community - Eagle Scout Project	Eagle Scouts install 350 trees in the linear park. Warwick Township and Chesapeake Bay Foundation (CBF) participates.
Restoration - Tshudy Property	300 feet of rock bank stabilization, 40 feet of biolog and tree planting

	Donation - Greenleaf Nursery	450 five gallon potted trees from Greenleaf Nursery for riparian plantings along Lititz Run.
1996	Grant - Embrace a Stream	\$5000 - Embrace A Stream award - Trout Unlimited
	Restoration - Smucker Farm	Ag BMP's - planting trees, barnyard improvements.
	Mitigation Credits/ Restoration	\$5000 to create 0.02 acre wetland mitigation Bog Turtle habitat.
	Donation - Waterfowl USA	\$2500 - Waterfowl USA -Lancaster Chapter - Ag runoff/wetland/habitat in riparian area.
	Restoration - Millport Conservancy	Tree plantings and bank stabilization on the stream. Pheasants Forever planted a six acre field adjacent to the creek in warm season grasses.
	Community - Warwick High School	2000 seedlings were planted with student labor. Warwick High School coordinates hands on learning by growing plants from seedlings for replanting the following year on Millport Conservancy property.
	Restoration/Ag BMP - Jake King	800 linear feet of stream improvements - rock stabilization, regrading, reseeding, and streambank fencing, cattle crossings, access areas, and tree plantings.
	Restoration - Banta Wetland Farm	Stream improvements - instream jack dams, bank stabilization, tree plantings, and the installation of a 3 acre warm season grass plot.
	Grant - Warwick Township	\$4,200 from Warwick Township for Lititz Run Riparian Park.

Grant - Pledged	Lititz Sportmans Association - Lititz Run Riparian Park.
Public Outreach	Presentation Board of The Lititz Run Watershed - prepared by LandStudies, Inc.
Education - Workshop	Land use planning/Conservation workshop held at Millport Conservancy and organized by LandStudies, Inc. 12 local cosponsors with proceeds to watershed planning efforts.
Public Outreach - Warwick High School	Presentation Board exhibit at Open house for students and parents.
Grant Confirmed - EPA 319	EPA 319 Grant administered by Pennsylvania Department of Environmental Protection (PADEP) in the amount of \$243,000 for planning and implementation in 1998 and 1999. In-kind dollars and cash donated from numerous groups and organizations.
Government Coordination	Presentation at the Chesapeake Bay Local Government Advisory Committee, Harrisburg.
Restoration - Lititz Run Riparian Park	5 acre Lititz Run Riparian Park Constructed.
Mitigation - Bog Turtle Habitat Creation	0.2 acre Bog Turtle habitat created at Millport Conservancy.
Government Coordination - EPA	County representative and LandStudies, Inc. present project EPA Region 3 in Philadelphia.
Government Coordination - EPA	LandStudies presents project to EPA watershed planning conference and watershed tour is conducted. Community participates in tour.

1997	Restoration - Santo Domingo Park	Planning of Linear riparian park along Santo Domingo Creek with construction in the fall of 1997.
	Restoration - Millport Conservancy	Stream improvements ongoing at Millport Conservancy. Coordinated by Donegal Chapter of Trout Unlimited.
	Government Coordination	James Seif, Secretary of PA Department of Environmental Protection makes announcement of the Chesapeake Bay Partner Awards at Lititz Springs Park. Lititz Borough and Warwick Township are both award winners.
	International Education	Japanese delegation tours watershed as part of Pennsylvania visit coordinated by Brubaker Agronomics.
	Restoration - Bioengineering Project	Bioengineering project completed in downtown Lititz. Financial sponsors of project Borough of Lititz and Farmer's First Bank. Design and construction management by LandStudies.
	Awards - Chesapeake Bay Partner	Lititz Borough (Gold) and Warwick Township are recognized by Chesapeake Bay Program as a "Chesapeake Bay Partner Community".
	Grant - Rivers Conservation	Rivers Conservation Watershed Planning Grant awarded to Donegal Chapter of Trout Unlimited - \$25,000. Management of grant by LandStudies.
	Lititz Run Watershed Alliance	The Lititz Run Watershed Alliance was founded.

1998	Restoration - Bioengineering Project	Bioengineering project that stabilized 300 linear feet of Lititz Run streambank on the McKennon Property, Borough of Lititz. Financial sponsors of the project by the Borough of Lititz. Design and construction management by LandStudies.
	Planning Seminar	An educational seminar was held at the Millport Conservancy, sponsored by the Local Government Advisory Council. Local planners, engineers, and municipal officials took part in the event and meet with planning experts from throughout the Chesapeake Bay Region. The seminar produced recommendations for how to improve the sustainability and livability of the Lititz Run watershed community.
	Watershed Tour	Pennsylvania Recreation and Parks Society (PRPS) attended a watershed tour as part of their annual conference.
	Volunteer Work- Trout Unlimited	Members of Donegal Chapter of Trout Unlimited volunteer to install native plant material in downtown Lititz, and to install netting to protect new planting from the local duck population.
	Comprehensive Strategic Planning	A year long joint planning effort was undertaken by the Borough of Lititz and Warwick Township to address a long-term planning strategy. The funding for this planning effort was provided by Lancaster County Planning Department.
	Environmental Education Day	The Warwick School District sponsored a first annual environmental education day at locations throughout the watershed. Students learned about their local watershed, the stressors on water quality, the aquatic food chain and worked in a native plant nursery.

Remote Sensing / Satellite Imagery

LandStudies participated in an remote sensing course for land planners at Penn State University. Imagery from the watershed was classified to examine land use change over the last 10 years. This data can be used to identify important resource areas throughout the watershed.

Water Quality Facility Completed

The Santo Domingo Water Quality Facility was constructed during the fall. The Santo Domingo Creek is the largest contributor of nutrients and sediment to the Lititz Run. This facility was designed to provides a two step stormwater treatment. The facility's forebay will allow sediment to settle out of suspension, while a divers 3.5 acre wetland will uptake nutrients. This facility is expected to greatly improve the water quality of the Lititz Run while providing improved wildlife habitat and an amenity to the local residents.

Dam Removal

To improve fish passage, an dam structure was removed on Lititz Run adjacent to the Riparian Park. The 1.5' high structure was removed and replaced with a stepped stone structure that will restore a natural stream riffle sequence.

Project Planning

Conceptual plans have been prepared and permitting is underway for the Millport dam removal / stream restoration project. The Millport mill pond is large and shallow and contributes significantly toward the thermal pollution of the stream. The dam removal and stream restoration project is expected to greatly improve aquatic habitat in the lower reaches of the Lititz Run.

Baum Farm

Agricultural BMPs were installed on the Baum Farm during the fall of 1998. BMPs used include: Stream Fencing / Forested Riparian Buffer Plantings, Livestock Stream Crossings, Manure Storage Facility Construction, and installation of Barnyard Spouting and Gutters. The project comprehensively addressed both the needs of the farmer and the natural resource.

Public Outreach

The Lititz Run Watershed Alliance is currently working on producing an educational brochure and video of the local watershed.

Lititz Run Watershed Booklet

An educational Booklet entitled "The Lititz Run Watershed - a community improving its water quality" is to be printed early in 1999. The booklet includes three sections: Watershed Inventory, Watershed Analysis and Watershed Plan. The Watershed Plan makes specific recommendations on how water quality can be improved throughout the watershed. Funding for the project was provided by DCNR's Rivers Conservation Watershed Planning Grant. The booklet was designed and written by LandStudies.

1999 Wellhead Protection Ordinance

This ordinance includes natural resource management and planning coordinated with local, county, and state officials.

Natural Resource Compensation
Receiving Areas (NRCRA)

These areas are opportunities within the watershed for restoration projects. The areas have been designated and quantified by their optimum potential based on existing conditions and land use. The NRCRA's can be used as receiving areas for negotiations or regulatory compliance, or conflict resolutions tools. NRCRA's identified include wetland creation and enhancements, forested riparian buffers, streambank restoration, agricultural best management practices, and warm season grass meadows.

Tax incentive - Forested Riparian
Buffers

A comprehensive evaluation of a 35 foot buffer on both sides of all stream corridors within the watershed were identified, mapped, and quantified by their recorded tax assessment based on Lancaster County values. This was done in cooperation with Lancaster County GIS Department. Values were quantified on a 2,5,10, 20 year amortization schedule.

Watershed Restoration Permit
(State/Federal)

A watershed restoration permit was approved for 14000 linear feet of stream restoration utilizing Natural Channel Design and fluvial geomorphologic principles.

Chesapeake Bay Program - Living
Resources Committee Tour

LRWA hosted a tour for this group to view ongoing and proposed restoration projects.

Restoration - Cedar to Water
Street (900 ft)

A collaborative effort between Lititz Borough and Farmer's First Bank funded this project. Natural channel Design techniques were incorporated. A created wetland is proposed in this location to treat run off from an adjacent parking lot prior to entering the stream. Boulders required for restoration efforts were donated by a local developer. Labor and equipment was donated by Lititz Borough.

Restoration - Wynfield Industrial

Park Approximately 15 acres of commercial land owned by 7 companies is being prepared for a warm season grass meadow and forested riparian buffer along the headwaters of the Santo Domingo Creek.

Restoration - Warwick High
Hockey Club

Approximately 1 mile of stream corridor was planted by this group with supervision provided by Donegal Trout Unlimited.

Monitoring

Millersville University and Warwick High School continue to monitor the 9 stations for macroinvertebrates and water parameters.

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Contacts

Lititz Run Watershed



Lititz Run Watershed Alliance

The Lititz Run Watershed Alliance is a group made up of individuals, businesses, farmers, non-profit conservation organizations and local, state and federal government representatives who have joined together and are committed to a comprehensive approach to continual water quality improvement within the Lititz Run Watershed.

LRWA Address:
PO Box 308
Lititz PA 17543





Mark Gutshall

LandStudies, Inc. (Watershed Mgt Consultant for Lititz Run Watershed Alliance)

6 South Broad Street

Lititz, PA 17543

Phone: 717-627-4440

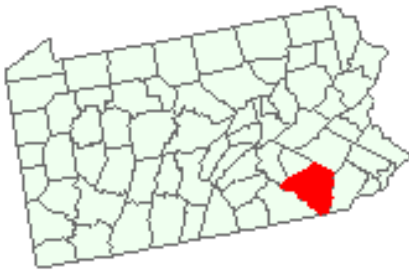
Fax: 717-627-4660

mark@landstudies.com

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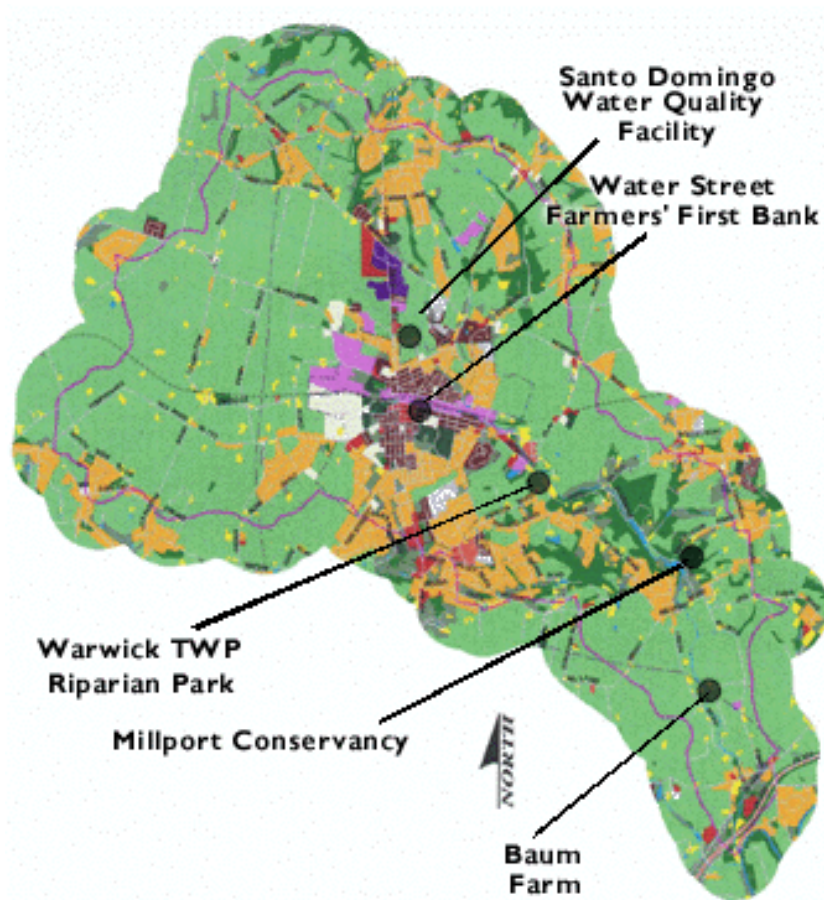


Location Lititz Run Watershed



The Lititz Run Watershed is in the Central Appalachian Broadleaf Forest, lower piedmont physiographic province of the Northeastern US. Lititz Run is a third order pastoral limestone stream with its main source of water bubbling out of the Lititz Spring Park in downtown Lititz, PA. Its major tributary is an intermittent stream (Santo Domingo) that supplies most of the sediment load as it is situated in a agricultural dominated landscape. Much of the watershed is unforested with the exception of several mature forest patches scattered in the headwaters and on the main stem. Although now a mixed suburban / urban / rural watershed, this was a rural, agricultural area 20 years ago. Suburban development has substantially increased in last 20 years, and agriculture is still a very large element of the watershed and the County. Lancaster County has some of the most productive, non-irrigated farmland in the United States.

Lititz Run Watershed Map



The Lititz Run Watershed showing project area locations (click on dots to browse example project summaries and photographs)

National Showcase Watersheds



Millport Conservancy Comprehensive Restoration Lititz Run Watershed



Warm Season Grass Meadow



Dam Removal to restore fish passage and eliminate thermal pollution source

Abstract

Project name/location: Millport Conservancy Comprehensive Restoration

Comments: The Conservancy is committed to ecological restoration of the 40 acre property.

Principal Funding Organization: Pennsylvania Department of Environmental Protection / EPA 319

Partnerships in Completion:

- Donegal Chapter of Trout Unlimited
- Pennsylvania Fish and Boat Commission
- Pennsylvania Dept. of Env. Protection
- Lancaster County Conservation District
- United States Env. Protection Agency
- Chesapeake Bay Program
- Alliance for Chesapeake Bay
- Chesapeake Bay Foundation
- Millersville University
- Millport Conservancy
- Pheasants Forever
- United States Fish and Wildlife Service - Partners For Wildlife
- LandStudies, Inc.
- Project Steward or Contact Person: Mark Gutshall; LandStudies, Inc.

Funding & Construction:

Name: Mr. Mike Sherman, Pennsylvania Department of Environmental Protection Type
Organization: State Government

Address: Rachel Carson State Office Bldg. P.O. Box 8775, Harrisburg, PA 17105-8554
Telephone: 717-787-5267
Fax: 717-787-9549

Website Link/E-mail: <http://www.dep.state.pa.us>

Total Funding Required: \$200,000
Additional Funding needed: \$100,000
Beginning Date of Project: 1996
Beginning Date of Construction: 1996
Ending Date of Construction: 2000
Size of Project: Approximately 20 acres
Area of Wetland: 5 acres
Area of Warm Season Meadow: 15 acres
Length of Stream Corridor: 1 mile

Project Purpose & Implementation

Restoration Goals/Objectives

- Dam Removal / Restoration of Fish Passage
- Reduced Thermal Pollution
- Stabilization of Pond Sediment
- Created Wetlands
- Restored Warm Season Grass Meadows
- Restoration of stream channel
- Improve Aquatic Habitat
- Streambank Stabilization
- Restoration of Native Plant Communities
- Exotic and Invasive Weed Control
- Restore Stream's access to Floodplain

Project Characteristics and Land Use

Project is located in the middle section of the watershed and serves as an important wildlife habitat and open space area for the community. The Conservancy's property is zoned conservation land. A masterplan for the entire conservancy was prepared to address natural resource restoration and land management.

Lessons Learned

Regulatory agencies need to implement a permitting process that expedites comprehensive restoration projects by avoiding piecemeal permitting requirements regardless of the amount of funding secured.

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Partners in the Watershed Effort Lititz Run Watershed

Partner	Role
Lititz Run Watershed Alliance http://www.landstudies.com/LRWA.html	Citizens group dedicated to improving water quality.
LandStudies, Inc	Professional Watershed Management Consulting
Lancaster County Conservation District	Agricultural Coordination
Donegal Chapter of Trout Unlimited http://www.patROUT.org	Water/Land Conservation/In-kind Labor
PA Dept. of Env. Protection	Water Resource Data (Existing)
Penn State Extension	Water Resource Data / Education
Natural Resource Conservation Service	Personnel and technical resource/Agricultural lands
Lancaster County Planning Commission (Water Resource Division)	Personnel and technical resources
Lancaster County GIS Department	Resource Mapping
Lancaster Farmland Trust	Opportunity for receiving areas

Lancaster County Conservancy

Easement coordination

Municipalities

Local coordination

Warwick School District

Data Collection / Environmental Education

[Warwick Township](#)

Local government coordination Data
Collection / Education Outreach

Millersville University

Chesapeake Bay Foundation

Youth Education Facilitation

Alliance for Chesapeake Bay

Water Quality / Education

[Millport Conservancy](#)

Natural areas management

[Brubaker Agronomic Consulting
Service](#)

Nutrient management plans

League of Woman Voters

Water Quality Background/County Presence

[Borough of Lititz](#)

Community and governmental involvement and
leadership

National Showcase Watersheds



Partners in the Watershed Effort Lititz Run Watershed

Partner Name: LandStudies, Inc.

Participation: Watershed Management and Project Coordination for the Lititz Run Watershed Restoration is provided by LandStudies, Inc. The firm provided technical, planning, permitting, design and administrative management for all aspects of the watershed restoration. LandStudies also served as the catalyst for the formation of the watershed organization, the Lititz Run Watershed Alliance (LRWA).

LandStudies is an environmental land planning and consulting firm providing conservation related services to public, private and non-profit organizations. Since 1989, LandStudies has provided Restoration, Planning, Installation and Consulting services for projects throughout central and southcentral Pennsylvania.

Contact Mark Gutshall, 717-627-4440

Information:

Website/email: <http://www.landstudies.com>; mark@landstudies.com

Partner Name: Pennsylvania Department of Environmental Protection (PADEP),
Bureau of Watershed Conservation.

Participation: The PADEP, Bureau of Watershed Conservation has provided funding for restoration of the Lititz Run Watershed. Through a Clean Water Act Section #319 Grant, PADEP has committed \$243,000 to:

- Reduce nutrient pollution associated with five dairy farms in the watershed
- Reduce sedimentation problems associated with Santo Domingo Tributary
- Reduce nutrient load and thermal pollution by restoring a wetland area and stream channel in place of Mill Pond.
- Create GIS Database and mapping for natural resource management of the Lititz Run Watershed.
- Provide education and public outreach to the community.
- Establish forested riparian corridors along two miles of Lititz Run and its headwater tributaries.

Contact Information: Fran Koch, PADEP, 717-783-2289

Website: <http://www.dep.state.pa.us>

Partner Name: Donegal Chapter of Trout Unlimited

Participation: Donegal Chapter of TU was the organization that helped initiate the Lititz Run Watershed Restoration Effort. Members were working 10 years ago with local land owners to stabilize streambanks and improve instream aquatic habitat. Their early efforts raised people's consciousness of the importance of clean water and caused others to become interested in undertaking a more comprehensive approach to watershed planning. TU members continue to play an important role in the ongoing restoration effort by providing volunteer labor and technical expertise.

Contact Bob Kutz, 717-393-0478

Information:

Website Information: bobkutz@desupernet.net

Partner name: Borough of Lititz

Participation: The commitment to the restoration of the Lititz Run Watershed by the Borough of Lititz has been flourishing, particularly, throughout the course of the last decade. Beginning in 1990, Lititz Borough Council established the 7-member Flood Control Advisory Committee to perform periodic inspections of watershed areas and to recommend projects for stream restoration. The committee meets bimonthly and, since their inception, has annually recommended Lititz Run Watershed improvement projects to the Lititz Borough Council for approval, ie. bank stabilization, stream restoration, bioengineering, riparian plantings, etc. Business adjacent to the Lititz Run Watershed have also followed the Borough's lead in initiating stream restoration projects.

In 1992, when volunteers from Trout Unlimited began intensive restoration projects in the surrounding municipality (Warwick township) it became apparent to the elected officials of both the Borough and the Township, that there were a multitude of benefits to working together for the welfare of the entire Lititz Run Watershed. With the onset of matching grants for both municipalities, restoration projects in the Borough and the Township began to occur simultaneously and continue to occur to the day.

In June 1997, the Borough of Lititz was recognized as a Chesapeake Bay Partner Community receiving the GOLD Community Status, having reached the highest percentage of benchmarks achievable for efforts made to promote clean water and protect resources.

Contact Information: Sue Barry, Borough Business Manager

Partner Name: **Warwick Township**

Participation: Warwick Township is a member of the Lititz Run Watershed Alliance and is committed to achieving the objectives of the Alliance. Local government can, and must be part of any comprehensive effort to improve a watershed. The Township assists with grants, provides project sites, education and coordination of the watershed projects.

Contact Information: Daniel Zimmerman, 717-626-8900

Partner Name: **Lancaster County County Conservation District (LCCD)**

Participation: The LCCD has been involved with the Lititz Run Watershed Restoration effort by providing landowner contacts, technical design and construction inspection for agricultural operations with the watershed. Best Management Practices installed include Manure Storages, Barnyard Runoff Control, Roof Runoff Management, Waterways, Diversions, Livestock Stream Crossings, Streambank Fencing, Forested Riparian Buffers, Planned Grazing Systems and Cropland Management.

Contact Information:
Website/E-mail: <http://pacd.org>

Partner Name: **Lancaster County GIS (Geographic Information Systems) Department**

Participation: The Lancaster County GIS Department participated in the Warwick Watershed Days. Warwick Watershed Days is a program that the Chesapeake Bay Foundation started to inform Warwick School District 5th graders about their watershed. The GIS department provided maps of Lititz Run for the classroom. On May 14 the Warwick 5th Graders went to various parts of Lititz Run to actually see the stream. The GIS Department set-up a station in the Millport Conservancy. The station demonstrated how GPS (Global Positioning Systems) works. The 5th graders had a hands on demonstrations on how GPS could be used to map objects that are harmful and helpful to the watershed.

Contact Information:
website: <http://www.co.lancaster.pa.us/GIS.htm>

Partner Name: **Millport Conservancy**

Participation: The Millport Conservancy is one of the most important remaining natural areas containing the largest contiguous woodland area within the Lititz Run Watershed. The Conservancy has a long standing relationship with Donegal Chapter of Trout Unlimited to implement Stream Improvement Projects in the Millport Conservancy Land Holding. They have undertaken work on a comprehensive restoration and proper management of the entire conservancy landholding. As part of that management/restoration, they are addressing issues such as forest management, stream corridor management, recreation planning, and wildlife habitat enhancement.

Contact Information:
Logan Myers, 717-626-0487

Partner Name: **Brubaker Agronomic Consulting Service (BACS)**

Participation: BACS developed comprehensive Nutrient Management plans for farms within the Lititz Run Watershed. The plans include:

- Manure and Fertilizer Management
- Gross and Net Nutrient Needs by Crop Group
- Manure Application Recommendations
- Storm Water Runoff Control
- Best Management Practices
- Projects BACS has been involved with Levi Smucker Farm, Wayne Baum Farm, David Leid Farm

Contact Information: Chris Sigmund, 717-859-3276

Website/email: <http://www.brubaker.com>; ChrisS@BrubakerAg.com

National Showcase Watersheds



Lititz Run Riparian Park - Warwick Township



Lititz Run Riparian Park - Warwick Township Before



Lititz Run Riparian Park - Warwick Township After

Abstract

Project name/location: Lititz Run Riparian Park - Warwick Township

Comments: This was the first of the environmental restoration projects involving a local government municipality. The project was appealing because it solved a maintenance problem for the township while demonstrating an alternative to lawn turf-grass from an ecological and economical perspective. The project is in a highly visible location and has educational signage explaining the functions of such park features as wetlands and forested riparian buffers.

Principal Funding Organization: Donegal Chapter of Trout Unlimited

Partnerships in Completion:

Warwick Township

Donegal Chapter of Trout Unlimited

Warwick High School

LandStudies, Inc.

Project Steward or Contact Person: Mark Gutshall, LandStudies, Inc

Funding & Construction:

Name: Mr. Greg Wilson

Type Organization: Non-Profit Organization

Address: Lititz, PA

Telephone: 717-859-4770

Website Link/E-mail: Associated with PATROUT @ www.PATrout.org

Total Funding Required: \$15,000

Additional Funding needed: N/A

Beginning Date of Project: 1996

Beginning Date of Construction: 1996

Ending Date of Construction: 1997

Size of Project: 6 acres

Area of Wetland: 0.25 acre

Length of Stream Corridor: 600 feet

Project Purpose & Implementation

- Restoration Goals/Objectives
- Reduced maintenance inputs and costs
- Wildlife habitat creation
- Streambank stabilization using bioengineering
- Restoration of native plant communities - forested riparian buffers / Warm season grass meadows

- Aquatic emergent wetland designed to pretreat road runoff before entering stream

Project Characteristics and Land Use

Site is immediately adjacent to a vehicular corridor and receives significant exposure. Project is owned and maintained by local government - Warwick Township. Discharge from the community water treatment facility is adjacent to site. Amish farm adjoins property.

Lessons Learned

Volunteer labor and donated services were necessary for the success of this project. Initial discussions regarding natural resource management were presented with a rendered "proposed" plan. Since this was a visible location, and owned by the Township, it promoted natural landscaping as an acceptable alternative to maintained lawn.

Economic Factors

Reduced maintenance cost for mowing and maintaining lawn.

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Santo Domingo Project Lititz Run Watershed



The property before the constructed wetland project.



The created wetland immediately after its construction.
([Image of Landscape Planting Plan](#))

Abstract:

Project name/location: Santo Domingo Water Quality Facility

Comments: Township owned and maintained. Approximately 100 community volunteers assisting in the installation of plant materials.

Principal Funding Organization: Pennsylvania Department of Environmental Protection - Wetland Replacement Fund

Partnerships in Completion:

Pennsylvania Department of Environmental Protection - Bureau of Watershed Conservation

Warwick Township

Donegal Trout Unlimited

Residents of the community

Alliance for the Chesapeake Bay

Chesapeake Bay Local Government Advisory Committee

Center For Chesapeake Communities

Chesapeake Bay Foundation

United States Environmental Protection Agency - Wetlands Division

Octoraro Native Plant Nurseries

LandStudies, Inc.

Project Steward or Contact Person: Mark Gutshall, LandStudies, Inc.

Funding & Construction:

Name - PADEP - Div. of Wetlands Protection - Mr. Ken Reisinger

Type Organization- State Government

Address: Rachel Carson State Office Bldg. P.O. Box 8775, Harrisburg, PA 17105-8554

Telephone: 717-787-6827

Fax 717-772-5986

Website Link/E-mail: <http://www.dep.state.pa.us>

Total Funding Required: \$130,000

Additional Funding needed: \$8,000

Beginning Date of Project: 1997

Beginning Date of Construction: 1998

Ending Date of Construction: 1998

Size of Project: 6 Acres

Area of Wetland: 3 Acres

Project Purpose & Implementation

Restoration Goals/Objectives

Environmental Restoration / Wetland Creation

Improve Water Quality

Create Wildlife habitat and biodiversity

Example of functional open space management / passive recreation

Project Characteristics/Land Use

Project is situated on floodplain and adjacent to active recreational fields and walking trail. It is surrounded by single family residences and townhouses. Buy-in from the land developers were an important aspect of the project since the facility is directly adjacent to new homes being constructed. The facility is considered to be an amenity and a marketing feature for the new development.

Lessons Learned

The timing of permitting and funding need to be synchronized for best results. Design and engineering of community-based projects is more productive with local input and mangement.

National Showcase Watersheds



The Lititz Run Watershed Initiative: A Community Restoring its Water Quality **Lancaster County, PA**



Figure 1 and 2

The Lititz Run watershed as seen from the air and on the ground.

[Larger aerial photo](#)

The community and lifestyle within the Lititz Run Watershed, Lancaster County (Figure 1) is changing from rural to rural/suburban. Active agricultural enterprises abut residential lands that surround the historic town of Lititz, Pennsylvania. Inherent non-point source (NPS) pollution problems associated with agricultural production exist in Lititz Run (Figure 2). In addition, the degrading effects associated with converting open space to impervious surfaces are occurring as a result of suburban sprawl development.

Non-point source pollution associated with stormwater run-off, erosion and sedimentation, and

nitrogen and phosphorus loading are responsible for the degradation of Lititz Run. This community is improving its water quality through a comprehensive long-term watershed management strategy that combined techniques in natural resource management, land use planning, education and community involvement (Figure 3) in addressing non-point source pollution. A brief list of associated projects (see map and example projects below) includes agricultural management plans throughout the watershed, natural channel design using fluvial geomorphology, planning and construction of a regional water quality facility, creation of GIS database and mapping of mitigation banking sites and water quality monitoring data, streambank stabilization and establishment of forested riparian buffers along the stream; along with public educational material such as a brochure and video about the watershed as well as a watershed education booklet (1999 rivers conservation plan).



Figure 3.
Volunteers create a wetland near Lititz Run to help filter pollutants from runoff.

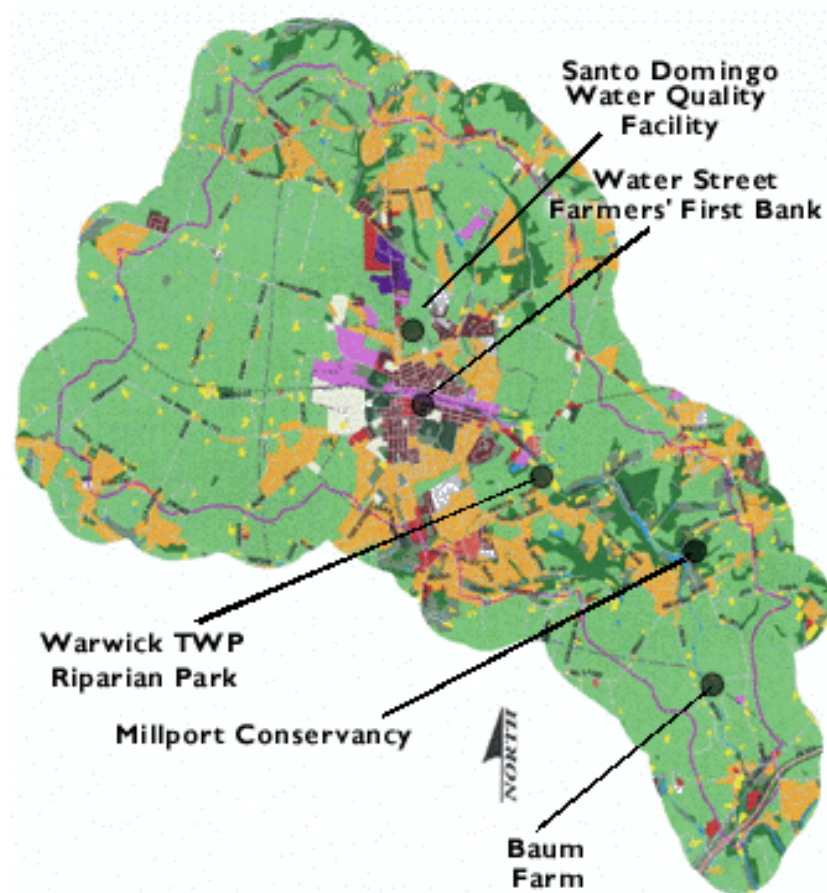
This
has
been
the
first



Lititz Run Watershed Alliance

effort of this type in the area. The success of the initiative is evident through the formation of an active community group and receipt of over \$400,000 in grants and donations for improving the watershed. A group of 15 - 20 community residents have gathered monthly over the past two years to discuss watershed issues. This group known as The Lititz Run Watershed Alliance (LRWA) has been very instrumental in soliciting input, support and involvement from citizens, businesses, non-profit affiliations, farmers, and local, county, state and federal governments. With over sixteen individual projects installed or in planning stages (see Figure 5 below), the initiative is showing results that are both tangible and intangible. Tangible results include improvement in water quality as demonstrated in the monitoring program established by faculty and students from the local high school, sighting of a Black Crowned Night Heron at the created wetland of the regional water quality facility, improved wildlife habitat along a restored section of a stream, and the revegetated banks of Lititz Run. Intangible results include the aesthetic beauty of the wetlands and increased community awareness of natural resource issues. The initiative's success will resound throughout the community for years to come as the momentum builds and the planning efforts it was designed to initiate start to take shape.

Lititz Run Watershed Map



The Lititz Run Watershed showing project area locations (click on dots to browse example project summaries and photographs)

National Showcase Watersheds



**Baum Farm
Lititz Run Watershed**



Baum Farm Before



Baum Farm After

Abstract

Project name/location: Baum Farm - Agricultural Best Management Practices

Comments: Dairy farmer improving water quality while improving efficiency of his farming operation

Principal Funding Organization: Chesapeake Bay Program

Partnerships in Completion:

Pennsylvania Department of Environmental Protection / EPA 319

Lancaster County Conservation District

Donegal Chapter of Trout Unlimited

United States Fish and Wildlife Service - Partners for Wildlife

Chesapeake Bay Foundation

Project Steward or Contact Person: Jim Saltsman - Lancaster County Conservation District

Funding & Construction:

Name: Don Robinson, Administrator

Type Organization: County Government

Address: 1383 Arcadia Road Rm 6 Lancaster, PA 17601

Telephone: 717-299-5361

Fax: 717-299-9459

Total Funding Required: \$40,000

Additional Funding needed: N/A

Beginning Date of Project: 1998

Beginning Date of Construction: 1998

Ending Date of Construction: 1999

Length of Stream Corridor: 1200 feet

Project Purpose & Implementation

Restoration Goals/Objectives

- Improve water quality by Reduce Nutrient Runoff
- Restore stream channel geometry
- Stabilize streambanks
- Stream Fencing with Designated Cattle Crossings
- Covered Manure Stacking Facility
- Separation of rain water from Barnyard Runoff
- Install Drainage System for Barnyard and Paddock Area

Project Characteristics and Land Use

Dairy farm is located in the lower reaches of watershed and is surrounded by a mix of Amish, Mennonite and 'English' Farms.

Lessons Learned

Be persistent with your message. It took this landowner 4 years before he committed to the project. Farmers upstream and downstream from him restored their streams 3-5 years prior to this project.

National Showcase Watersheds



Water Street - Lititz Borough/Farmer's First Bank Lititz Run Watershed



Water Street Before: Lititz Run is wide and shallow with poor aquatic habitat



Water Street After: Rock structures were placed to narrow the stream channel, improve aquatic habitat and give high water better access to floodplain

Abstract

Project name/location: Cedar - Water Street - Stream Restoration

Comments: Collaboration between Farmer's First Bank and Lititz Borough

Principal Funding Organization: Farmer's First Bank

Partnerships in Completion:

- Farmer's First Bank
- Lititz Borough
- LandStudies, Inc.

Project Steward or Contact Person: Mark Gutshall; LandStudies, Inc.

Funding & Construction:

Name: Mr. Bill Belden, President Farmers First Bank

Type Organization: Private Lending Institution

Address: 24 N. Cedar St. Lititz, PA 17543

Telephone: 717-626-4721

Website Link/email: <http://www.ffb.com>

Total Funding Required: \$38,000

Additional Funding needed: N/A

Beginning Date of Project: 1999

Beginning Date of Construction: 1999

Ending Date of Construction: 1999

Area of Wetland: 0.20 acres
Length of Stream Corridor: 900 ft.

Project Purpose & Implementation

Restoration Goals/Objectives

- Restore Stream channel using natural channel design and fluvial geomorphology principles
- Create wetland for filtration and treatment from parking lot runoff.
- Streambank Stabilization
- Natural Plantings to improve the Aesthetic and Environmental Qualities of this urban area.

Project Characteristics and Land Use

- Degraded Stream Channel with eroding Streambanks
- Poor In-Stream Habitat
- Urban Setting in Lititz Borough

Lessons Learned

Inform local businesses of the overall objectives of the watershed plan. Present ideas and opportunities and market your plan to the business community.