

**Tammany Creek watershed
17060103**



TMDL Implementation Plan for Agriculture

**Prepared by: Mike Hoffman
Idaho State Soil and Water Conservation Commission
and in cooperation with the Nez Perce SWCD**

2003



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1.0 OVERVIEW

Section 303(d) of the Federal Clean Water Act (CWA) requires States to develop a Total Daily Maximum Load (TMDL) management plan for water bodies determined to be water quality limited. A TMDL is a quantitative assessment of the amount of a pollutant a specific water body can effectively carry without violating a state's water quality standards. The TMDL analysis allocates that load capacity among known point sources and non-point sources of pollution.

State of Idaho water quality standards are intended to provide protection of designated beneficial uses. In the case of Tammany Creek, beneficial uses are defined as maintaining suitable habitat for cold water aquatic life and primary contact recreation. Tammany Creek was listed on the State of Idaho Water Quality Impaired Water Body 303(d) list in 1994 by the Environmental Protection Agency (EPA) for excessive sediment levels from its headwaters to the Snake River. The Tammany Creek Sediment TMDL was approved by EPA in February 2002. TMDL targets are based on water quality standards for sediment. This implementation plan is intended to provide a directional template on how to accomplish specific load reductions.

At present, specific objectives have been established for this implementation plan. However, this plan is dynamic, and as additional information becomes available during implementation, revisions to the current plan will be necessary. In the event that new data or information becomes available and justifies changes to the plan, revisions will be made with the assistance of the Tammany Creek WAG. Further, although specific targets and load capacities are identified in the TMDL, implementation is not considered successful simply if the targets, capacity, and allocations are met, but whether or not beneficial uses and water quality standards are ultimately achieved.

Changes in land use patterns over time have altered the flow regime of Tammany Creek. Soil infiltration has decreased and permanent vegetative cover has decreased. As a result, spring high flows are more intense, which leads to erosion of the stream channel itself. This also reduces the available base flow that the stream relies on during the driest times of the year through springs. Lower soil infiltration increases surface runoff, which additionally contributes sediment to the stream through soil erosion on the land surface.

This plan lays out areas in the watershed prioritized for treatment and proposes initial steps in alleviating the effects of peak flows and lowered soil infiltration capacity in the Tammany Creek drainage. Practices included in this plan were determined to be most efficient in reducing sediment input to the stream. Table 1 summarizes items proposed for the initial phase of implementation and associated costs. Proposed items that have not yet been initiated are not included in this summary table.

Monitoring will be performed as summarized in the plan. Information from monitoring will be useful in assessing progress made and developing treatment measures for further implementation.

**Table 1. Tammany Creek TMDL Implementation Plan Summary -
Phase 1**

Description	Completion Status	Implementing Agency	Cost	Funding Source	Funding Status
City of Lewiston Storm Water Management Plan	In Progress	City of Lewiston	\$4,600.00	City of Lewiston	Approved
Watershed Protection Plan for Tammany Creek - Land Treatment Measure (Supplement)	In Progress	NRCS*, NPSWCD**	\$1,859,410.00	PL-566 cost share	Pending
			\$1,030,065.00	Match	
Tammany Creek Watershed Project	In Progress	NRCS*, NPSWCD**	\$100,800.00	CWA Section 319	Approved
			\$68,432.00	Match	
Urban Livestock BMPs	Scheduled to begin 2004	City of Lewiston, NP Co Extension	\$15,460.00	CWA Section 319	Pending
			\$11,109.00	Match	
County Culvert Inventory	Completed April 2003	NP County Roads Dept.	\$1,880.60	NP Co Roads	Approved
County Road Drainage System Assessment	Proposed	Nez Perce County Roads Dept.	\$1,683.20	NP Co Roads	Pending
Riparian Restoration Project FY 2004	Scheduled to begin 2004	Palouse-Clearwater Environmental Institute	\$100,000.00	CWA Section 319	Pending
			\$66,700.00	Match	
		Total Cost	\$3,260,139.80		

*Natural Resource Conservation Service

**Nez Perce Soil and Water Conservation District

2.0 INTRODUCTION

The CWA section 305(b) requires states to prepare a report to submit to EPA every two years describing the status of its water quality. EPA then transmits this information to Congress. This process allows EPA, Congress, and the public to assess progress made in maintaining and restoring water quality and the scope of remaining problems. Section 303(d) of the CWA requires states develop TMDL management plans for water bodies that are water quality limited.

A TMDL analysis determines the amount of a pollutant that can be delivered to a water body without violating water quality standards. This amount is called the *loading capacity* of the water body. The difference between the loading capacity and the existing load of a pollutant is the reduction necessary to meet water quality standards. The TMDL document, while taking into account background conditions, allocates allowable loads to known point and non-point sources in the watershed and includes a margin of safety where uncertainty exists. Point sources are those sources of pollutant loading where the discharge is a defined point, such as a pipe or channel. Non-point sources (NPS) are those that cannot be attributed to a specific point of discharge, such as polluted runoff from an agricultural field or area of development. The goal of a TMDL is to determine pollutant load reductions necessary to meet water quality criteria in order to support the designated beneficial uses of a water body.

The State of Idaho has committed to developing TMDL implementation plans within 18 months from the date of TMDL approval by the EPA. A TMDL implementation plan is a separate document from the TMDL itself, although the plan is guided by the approved TMDL. The purpose of the implementation plan is to lay out the actions and schedules needed to achieve pollutant reductions, monitoring requirements for documenting progress, funding sources, and lead participants implementing specific actions within the plan (IDEQ 1999).

The goal of this implementation plan is to reduce the amount of sediment entering Tammany Creek from non-point sources by the amount specified in the Tammany Creek TMDL in order to achieve compliance with state and federal water quality law. By accomplishing this goal, the temperature, nutrient loads, and pathogen contributions are expected to be reduced. Instream and riparian habitat are expected to improve as well.

The community in and around the Tammany Creek watershed will see benefits from actions proposed in this plan beyond reaching the goal from a pollutant reduction perspective. A healthy, well-functioning watershed will help to regulate stream flow throughout the year, provide an attractive feature to the landscape, and increase available habitat for wildlife. The quality of water running through the Hells Gate State Recreation Area and entering the Hells Gate Marina and Swimming Beach from the mouth of Tammany Creek will be improved.

To reach the goal stated above, the following objectives have been established for the Tammany Creek Implementation Plan:

- 1) Reduce sheet and rill erosion on agricultural land
- 2) Reduce in-stream erosion
- 3) Reduce sediment delivery from residential developments
- 4) Reduce sediment delivery from rural roads and drainage systems
- 5) Increase vegetative cover on Tammany Creek
- 6) Provide landowners and technical support agencies with viable water quality alternatives, cost estimates, and potential sources of funding

3.0 BACKGROUND

Tammany Creek is a second-order tributary located in the Lower Snake-Asotin subbasin, hydrologic unit code 17060103. It lies within Nez Perce County, Idaho, and originates near the western boundary of the Nez Perce Indian Reservation in the rolling agricultural land southeast of the city of Lewiston (IDEQ 2001). Tammany Creek is roughly 13 miles in length with intermittent and perennial channels. It flows through the City of Lewiston Area of Impact zone and Hell's Gate State Park before joining the Snake River approximately 2.5 miles upstream from the confluence of the Snake and Clearwater Rivers (NPSWCD 2002, IDEQ 2001). The location of the Tammany Creek watershed is shown in Figure 1.

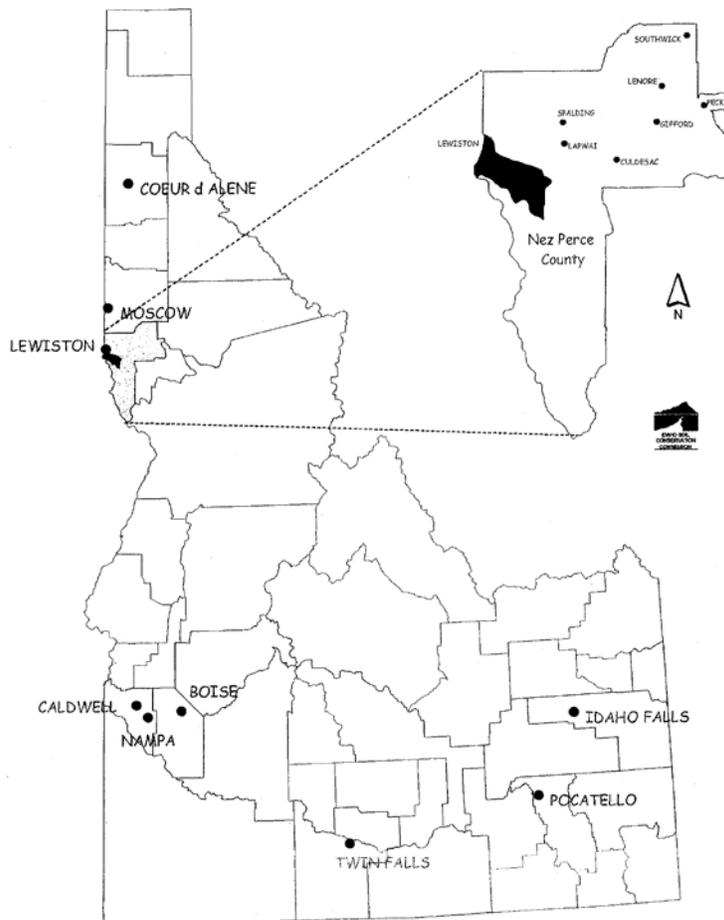


Figure 1. Tammany Creek Watershed Location Map (from NPSWCD 2002)

The Tammany Creek watershed covers roughly 22,500 acres. Land use consists of 74% non-irrigated cropland, 11% rangeland, 9% other permanent vegetation (such as grassland), 5% residential land, 1% pasture and livestock operations, 1% industrial land (including the Lewiston Airport), and less than 1% recreational land. Seventy-five acres of the upper watershed are located within the boundary of the Nez Perce Tribe Reservation. Land use is depicted in Figure 2. Historical land use also included dairy production (NPSWCD 2002).

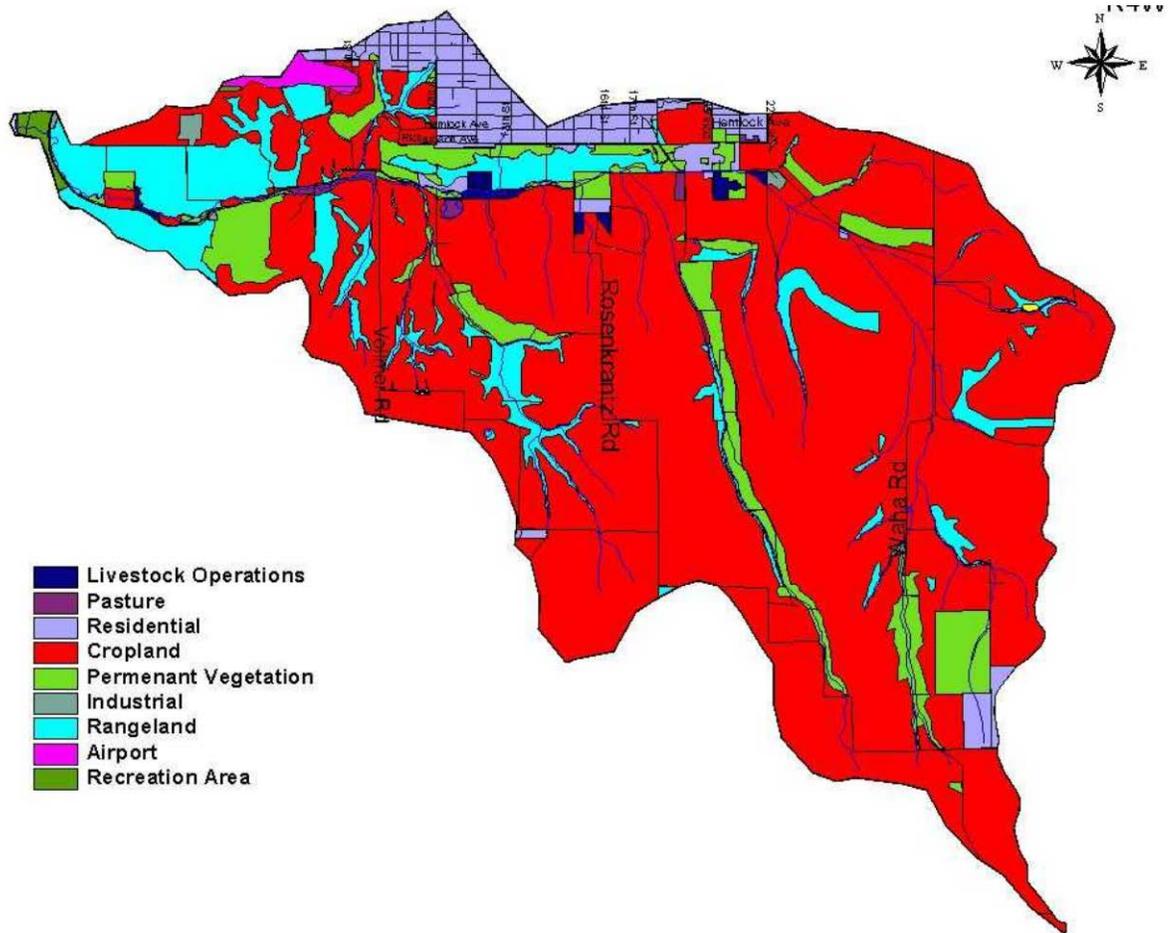


Figure 2. Land Use in the Tammany Creek Watershed

Land ownership in the Tammany Creek watershed is primarily private. The City of Lewiston, Nez Perce County, and the US Army Corps of Engineers own small portions of land within the watershed. Approximately 30 acres in the upper watershed are individual Indian trust allotments (Bell 2003).

4.0 PROBLEM

Historically, the Tammany Creek watershed consisted of rolling grasslands with large woody vegetation along stream banks and in riparian areas. Agricultural development, grazing

practices, roadway construction, rural development, and other structural modifications have resulted in a loss of much of the perennial vegetation and soil infiltration. This has caused increased sediment delivery to the stream and adversely affected the stream channel. Much of the natural retention of the landscape has been lost. This, in turn, has increased and accelerated springtime high flows, which scour the stream channel. The late summer base flow dependent upon groundwater and springs during dry times of the year has also been reduced (IDEQ 2001).

4.1 Tammany Creek TMDL

Water quality standards are specific to the beneficial uses designated for a water body. Tammany Creek’s existing beneficial uses are not currently designated in Idaho Water Quality Standards. The beneficial uses identified in the TMDL are secondary contact recreation (ie. wading) and cold water biota. Tammany Creek was listed on the State of Idaho Water Quality Impaired Water Body 303(d) list in 1994 by EPA for excessive sediment levels from its headwaters to the Snake River. The Tammany Creek Sediment TMDL was submitted to EPA in December 2001 and approved in February 2002. During the development of the TMDL, excess nutrients and pathogens were identified as other pollutants of concern. It is anticipated that these pollutants will be reduced through the activities included in this Implementation Plan. The next 305(b) and 303(d) assessment and listing processes will allow IDEQ to evaluate these other pollutant of concerns, as well (IDEQ 2001).

The TMDL analysis estimated that approximately 36% of sediment loads come from the stream bank erosion while approximately 64% is associated with runoff from agricultural fields. The TMDL analysis further indicates that there is a 7-month window during high flow conditions when sediment loads exceed loading capacity. The TMDL analysis attributed 11% of current sediment loads to background levels. A summary of the necessary reductions is shown in Table 2.

Table 2. Tammany Creek Sediment Loading Analysis Summary

Necessary Sediment Reductions (Percent)											
Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
0	0	29	45	69	77	80	69	19	0	0	0

As the Table shows, reductions are required from December through June. These sediment reductions are intended to provide conditions that allow for full support of the beneficial uses of cold water biota and secondary contact recreation (IDEQ 2001). The goal of this implementation plan is to reach these reductions in the sediment load entering Tammany Creek by addressing NPS pollution from locations identified with the Tammany Creek Watershed Advisory Group (WAG) as priority areas.

4.2 Priority Areas

Specific problems and problem areas were compiled from literature review and work group discussions. Problem categories include agriculture (including cropland and livestock),

residential areas, roads, and the stream channel itself. The intent in identifying critical areas is to provide prioritization for sediment reduction efforts as funding and resources become available. Treatment measures are proposed for each of these categories.

Critical areas have been identified in agricultural and residential areas as well as the stream channel itself. These areas are defined as those with high observed or potential rates of erosion and/or sediment delivery to Tammany Creek. For each problem category, these critical areas were identified using various methods. Critical areas for rural roads have not yet been identified. Road drainage system survey information from the Nez Perce County Roads Department will be used to delineate priority areas for roads as the data becomes available.

The NPSWCD has identified, with technical assistance from the NRCS, critical areas in the watershed prioritizing treatment areas for agricultural land. These critical areas are based on soil type and slope. Critical stream bank areas were identified from a streambank stability assessment performed as part of the assessment for the Tammany Creek PL-566 Supplement. A riparian area assessment also provided critical areas related to riparian vegetation. Cropland and rangeland critical areas are derived from treatment units defined in the *Watershed Protection Plan for Tammany Creek – Land Treatment Measure*. In this plan, four treatment units were defined for cropland. These treatment units define critical areas for cropland (Rasmussen 2003a).

Critical areas in suburban residential locations were identified based on field observations and storm water work group discussions involving the City of Lewiston, Nez Perce County, and NRCS personnel. The Tammany Creek TMDL analysis additionally identified the section of Tammany Creek between the Hells Gate State Recreation Area and Vollmer Road as the area with the highest levels of sediment input to Tammany Creek. These areas are collectively prioritized for treatment and are depicted in Figure 3. Critical areas related to rural roads are not yet included, as data is not yet available. The Nez Perce County Roads Department has completed a culvert inventory and is in the process of identifying problem areas in the watershed associated with eroding cut banks and drainage system components. Priority areas for roads will be determined when this data becomes available.

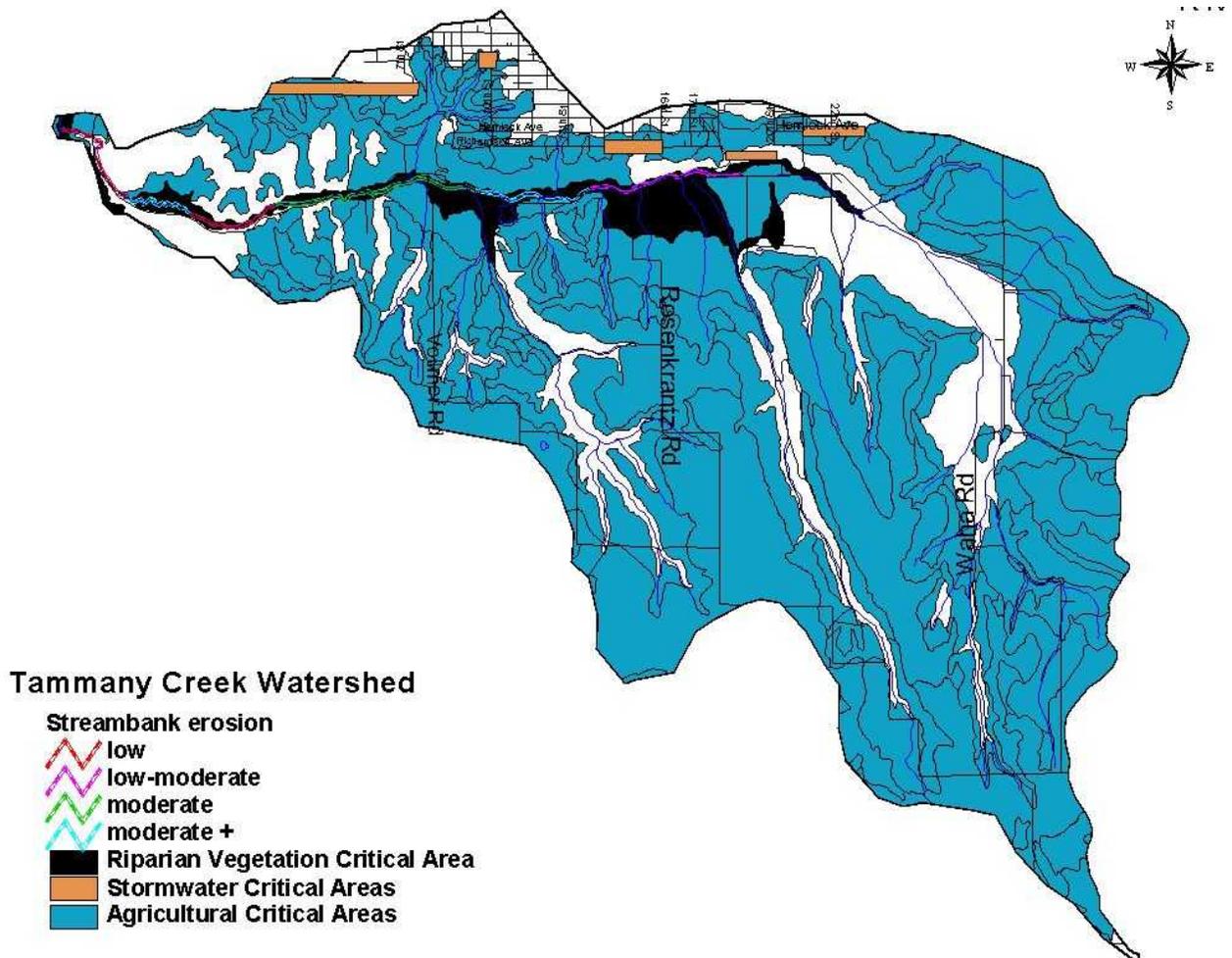


Figure 3. Critical Areas in the Tammany Creek Watershed

5.0 ACCOMPLISHMENTS

Water and soil conservation activities and watershed protection efforts have been ongoing in the Tammany Creek watershed for a number of years. Efforts have addressed NPS as there are no permitted point sources in the watershed. The NRCS have water quality data and survey notes from Tammany Creek from as early as 1971 (Rasmussen 2003b). The IDEQ began monitoring the water quality in Tammany Creek as early as 1976. They rated Tammany Creek as one of the top three priority segments on the 1982 segment priority list for the Clearwater Basin (Rasmussen 2003b).

5.1 Agricultural Land Accomplishments

Over the years, individual landowners in the Tammany Creek watershed have implemented several BMPs with technical and financial assistance from the NRCS, FSA, and the NPSWCD. BMPs have included the establishment of grassed waterways, erosion control structures, stripcropping, sediment basins, water and sediment control structures, terraces, diversions, conservation tillage, and streambank stabilization practices (Rasmussen 2003b).

Several funding sources have been utilized in the Tammany Creek watershed throughout the last three decades to address NPS pollution. Funding from PL-566 (small watershed program), CWA Section 319 NPS Management Program, Water Quality Program for Agriculture (WQPA), Idaho State Habitat Improvement Project (HIP), Resource Conservation and Rangeland Development Program (RCRDP), Conservation Reserve Program (CRP), and Pheasants Forever have been utilized for watershed improvements. Funds from these programs are currently being used to treat cropland, livestock operations, and stream bank erosion (NPSWCD 2002). A summary of programs utilized in the watershed is included in Table 3 below.

Table 3. Programs utilized in the Tammany Creek Watershed (Rasmussen 2003, Kendrick 2003)

Program	# of Contracts	# of Acres Under Contract
PL-566	18	1903
CRP	8	553
HIP	8	456
WQPA	2	266
RCRDP	2	1200

The Idaho Soil Conservation Commission is the designated agency for the control of non-point source pollution on agricultural land, working closely with the NPSWCD, NRCS, and ISDA (IDEQ 1999). The NPSWCD began addressing erosion on agricultural land in the late 1970's. In 1979, they initiated a Resource Conservation Assessment (RCA) for Nez Perce County that prioritized critical erosion areas. The NPSWCD then began addressing the erosion problem by pursuing funds to be used for planning and implementation from the State Water Quality Program for Agriculture (WQPA) (SCS, et al 1986).

Inventory and planning activities within the watershed began in 1983 (Rasmussen 2003b). The NRCS applied, and received funding for, implementation of agricultural BMPs in the watershed through the PL-566 program in 1986, with the NPSWCD as the project sponsor. Project activities began in 1985 and focused on erosion control practices for non-irrigated croplands (NPSWCD 2002). The *Watershed Protection Plan for Tammany Creek - Land Treatment Measure* was completed in October 1986 and served as the document guiding agricultural treatment measures aimed at watershed improvement.

The PL-566 Watershed Protection Plan included BMPs addressing both cropland and livestock operations, including conservation tillage, conservation cropping systems, strip cropping, water disposal systems, and permanent vegetative plantings. The plan estimated a 61% reduction in sediment input to Tammany Creek from target areas, along with associated nutrient and pathogen reductions. The outcome was anticipated to improve contact recreation opportunities and fishery resources and to enhance agricultural water supply use

(SCS & NPSWCD 1986). Implementation of this plan was furthered with a supplement in 1998.

The PL-566 project was modified in 1996, addressing stream temperatures and hydrologic modification in addition to nutrients, pathogens, and sediment (NPSWCD 2002). A PL-566 supplement was completed in 1998. Work under this project is ongoing. Land treatment contracts (LTC's) that have been implemented and completed as part of the PL-566 efforts since 1987 total 10,222 acres. LTC's that have been developed and are actively being implemented include 1,903 acres (Kendrick 2003). Activities that have been accomplished as part of the Tammany Creek Watershed Protection Plan are summarized in Tables 4 and 5 below.

Table 4. Tammany Creek Accomplishments from the Original PL-566 Watershed Protection Plan, 1987 (information courtesy of NPSWCD and NRCS)

Practice Installed	Amount*	Unit
Conservation Crop Sequence	6,901	acres
Conservation Tillage	7,603	acres
Contour/Cross-slope Farming	4,909	acres
Critical Area seeding	2	acres
Crop Residue Use	6,823	acres
Ephemeral Watercourse Planning (Maintain Vegetation)	3	acres
Grassed Waterway	2,700	linear ft.
Pasture and Hayland Management	130	acres
Pasture and Hayland Planting	60	acres
Stripcropping/Divided Slopes	3,306	acres
Terraces	11,923	linear ft.
Upland Wildlife Habitat Management	1,440	acres

*Amounts have been rounded to nearest whole unit.

Table 5. Tammany Creek Accomplishments from the PL-566 Watershed Protection Plan Supplement, 1998 (information courtesy of NPSWCD and NRCS)

Practice Installed	Amount*	Unit
Channel Vegetation	5,081	linear ft.
Conservation Cover	92	acres
Conservation Crop Rotation	1,881	acres
Contour Farming	1,881	acres
Critical Area Planting	2	acres
Deep Tillage (Subsoiling)	849	acres
Direct Seeding	261	acres
Fencing (CAFO)	2,030	linear ft.
Fencing (Riparian)	640	linear ft.
Fire Break	1	acres
Grade Stabilization Structure (Stream Bank Stabilization)	6	each
Grazing Plan (Rangeland)	4	acres
Irrigation Water Management	4	acres
Nutrient Management	1,401	acres
Pasture/Hayland Planting	35	acres
Pasture/Hayland Maintenance	165	acres
Pond	1	each
Range Planting	317	acres
Residue Management (Conservation Tillage)	866	acres
Residue Management (No-Till/Strip-Till)	1,761	acres
Residue Management (Mulch Till)	1,583	acres
Runoff Management System	1	each
Stream Bank/Shoreline Protection (Tree/Shrub Planting)	99	each
Stripcropping (Contour)	568	acres
Stripcropping (Field)	457	acres
Tree/Shrub Establishment	267	each
Upland Wildlife Habitat Management	48	acres
Use Exclusion	7	acres
Waste Management (Corral Berm)	300	linear ft.
Waste Management (Roof Runoff System)	5	each
Waste Management System (Storage Pad)	1	each
Water and Sediment Control (Sediment Basin)	11	each
Water and Sediment Control (Sediment Dam)	2	each
Watering Facility	4	each
Wetland Wildlife Habitat Management	5	acres
Wildlife Seeding	8	acres

*Amounts have been rounded to nearest whole unit.

Cropland

A reduction in erosion rates of 5 tons/acre/year from targeted areas has been shown from available data. This reduction is the difference between erosion rates calculated from

RUSLE runs comparing agricultural practices employed prior to BMP implementation and those used currently through programs offered by the NRCS (Rasmussen 2003).

Livestock Operations

The NPSWCD’s 1998 Animal Feeding Operation (AFO) inventory recorded 53 livestock operations within the Tammany Creek watershed. The Tammany Creek watershed was ranked as high risk as a result of this inventory. The ranking was based on the presence of practices such as direct animal access to the creek and inadequate runoff containment as well as the lack of a storm drain system in the Lewiston Orchards. The high number of animal feeding operations in the watershed resulting from the proximity of the Orchards and housing developments in the lower watershed further contribute to the ranking (NPSWCD 1998). Treatment measures installed to date specific to animal feeding operations are listed in Table 6 (includes items listed in Tables 4 and 5 above).

Table 6. Best Management Practices installed for Animal Feeding Operations in the Tammany Creek Watershed (Rasmussen 2003).

BMP	Number
Off-site water developments	10 each
Fencing	4,500 linear feet
Prescribed grazing	100 acres
Waste management	10 each
Pasture seeding	40 acres
Nutrient management	100 acres
Pest management	100 acres
Runoff management system	3 each
Filter strips	2 acres
Field borders	2 acres
Erosion control structures	10 each
Irrigation water management	10 acres

5.2 Rural Road Accomplishments

Resource inventory data collected during the development of the 1998 PL-566 Watershed Protection Plan Supplement estimated that approximately 4.3 miles of roads in the watershed were in need of improvement. This value is based on the estimate that 20% of the 21.6m miles of unimproved dirt roads in the watershed were in need of improvement (Rasmussen 2003). Since that time, approximately 2.5 miles of roads have been paved (Black 2003a).

5.3 Riparian and Stream Channel Accomplishments

The NPSWCD and NRCS have completed several riparian enhancement projects in the Tammany Creek watershed in conjunction with agricultural land BMP implementation. To date, BMPs, such as grade stabilization structures, riparian fencing, and offsite watering facilities for livestock have been installed in approximately 4,000 linear feet of stream channel. Channel vegetation has been established on over 5,000 linear feet of Tammany Creek (Rasmussen 2003b).

6.0 TAMMANY CREEK TMDL IMPLEMENTATION PLAN

The Tammany Creek Sediment TMDL recommends that implementation efforts be focused on stream bank riparian restoration activities in order to reduce in-stream erosion as well as provide sediment filtration for runoff from rural areas and agricultural fields (IDEQ 2001). Other activities, such as Best Management Practices (BMPs), that alleviate peak flows, stabilize stream banks, and provide filtration for runoff entering the stream will effectively reduce the sediment entering Tammany Creek. Restoration and BMPs focused in critical areas will be the most cost-effective in reducing sediment levels in the creek. Associated pollutants, including nutrients, temperature, and pathogens are expected to be reduced in the process of addressing sediment loads.

Best Management Practices and other conservation guidance activities constitute a large portion of implementation planned for agricultural land, residential properties, and both public and private roads. BMPs are defined as practices, or combination of practices, that have been established as the most effective and viable means of preventing NPS pollution. The BMPs included in this plan are voluntary in nature.

Implementation is broken down into point and non-point sources. Non-point sources are further categorized into treatment units based on land use. Treatment units include agriculture (including cropland, rangeland, pasture land, and other livestock areas), rural roads, and residential areas. Stream channel and riparian areas are also addressed as a treatment unit. Critical areas within these treatment units will receive priority consideration in implementation activities.

This implementation plan is subject to change as activities are performed and monitoring results produced. This plan employs measures considered most practical initially. In the event that attainment of beneficial uses is achieved prior to achieving sediment load reductions, or if load reductions are realized without the full support of beneficial uses, the plan will need to be evaluated for appropriateness.

This plan relies on ongoing watershed improvement work and proposed future projects to form the framework for initial implementation activities. Projects that have been, or may be, funded through the USDA Natural Resources Conservation Service (NRCS) PL-566 small watershed program and the CWA Section 319 Nonpoint Source Management Program currently constitute a majority of the plan. Additional activities have been, or will be, pursued through other programs, such as those administered by the Farm Services Agency (FSA). Local government will also play a significant role in this effort through local operations, planning, and development efforts.

Many of the implementation activities set forth in this plan will take several years to reach full effectiveness. This implementation plan includes operational changes, ongoing activities, and projects currently being pursued. Operational changes proposed are with respect to activity timing in order to consider the time frame of concern identified in the Tammany Creek TMDL. Since these changes require only adjustments in schedules, these were considered most reasonable and efficient. Other activities have been under way for a number of years, and continuation will prove efficient in the initial steps of this plan, as well.

Monitoring activities and effectiveness reporting will be used to measure the progress of the first phase of implementation. As individual projects approach completion, the plan will be reviewed and revised to consider progress made and include next steps. PL-566 activities will continue for many years. Smaller projects, such as the City of Lewiston's and Palouse-Clearwater Environmental Institute's (PCEI) CWA Section 319 grant program projects, including monitoring results, will be complete by the summer of 2006. Plan revision may be appropriate at that time, or as determined by the Tammany WAG and technical advisory agencies.

Implementation beyond activities included in this plan will require evaluation of monitoring results to assess the effectiveness and develop further treatment measures. Further implementation activities will be developed considering the progress and remaining needs of the Tammany Creek watershed at that time. A summary of potential funding sources for future implementation activities is included below.

6.1 Sources of Implementation Funding

PL-566 and Clean Water Act CWA Section 319 funds currently play a major role in watershed efforts in Tammany Creek. For projects that cannot be funded by these programs, other conservation programs exist. State programs are available from the Idaho Fish and Game and the Idaho Soil Conservation Commission. Federal programs are administered by the Farm Services Agency and the NRCS. Other funding sources include non-profit organizations.

PL-566

Congress set up the Watershed Protection and Flood Prevention Program (PL-566) to provide assistance to local organizations to voluntarily plan and install watershed-based projects. The program is administered by the NRCS and is often referred to as the "small watershed program." Public Law 83-566 presents a flexible means of water resource planning and management through utilization of land treatment practices combined with structural and nonstructural measures (Public Law 83-566, 83d Cong., 68 Stat. 666).

Clean Water Act CWA Section 319

EPA's CWA Section 319 Nonpoint Source Management Program additionally provides funds for activities that address NPS pollution. Congress enacted CWA Section 319 of the CWA in 1987, establishing a national program to control NPS pollution. It established the CWA Section 319 Nonpoint Source Management Program to help states, territories, and Indian Tribes develop assessment reports and adopt and implement management programs to control NPS pollution. Under CWA Section 319, NPS pollution control is largely voluntary and promotes practices aimed at protecting watersheds. EPA awards CWA Section 319 grants to states to assist them in implementing non-point source management programs (33 USC Sec. 1329). This program has taken an umbrella program role to target TMDL implementation and fund activities that are not eligible under previously existing programs. In Idaho, the CWA Section 319 program is managed by IDEQ (IDEQ 1999).

Water Quality Plan for Agriculture

The State of Idaho's Water Quality Plan for Agriculture (WQPA) provides financial incentives toward applying conservation practices designed to enhance water quality and fish

and wildlife habitat. Owners and operators of agricultural lands may be eligible for assistance if their property is designated as a critical area or source of pollution as determined by the local soil conservation district and the Soil Conservation Commission. Project funding is based on numerous criteria including Idaho's TMDL schedule, completed watershed plans, beneficial uses affected and ESA status. The Idaho WQPA, administered by the Idaho Soil Conservation Commission can provide up to 90% cost-share of approved practices and may be integrated with other funding programs.

Conservation Reserve Program (CRP)

Established by the Food Security Act of 1985, the USDA Farm Service Agency's (FSA) CRP is available to agricultural producers to assist them in sustaining the integrity of environmentally sensitive land. Participants in CRP plant long-term, resource-conserving land covers to aid in the overall improvement of water quality, wildlife enhancement, and reductions in soil erosion. Eligible land must be either: designated as an agricultural commodity 4 of the previous 6 crop years, or specific marginal pastureland enrolled in the Water Bank Program, or considered suitable for use as a riparian buffer. In exchange for enrolling in CRP, participants are provided with rental payments and cost-share assistance. Contracts are typically employed between 10 – 15 years and funds are distributed by FSA on behalf of the USDA's Commodity Credit Corporation.

Wildlife Habitat Incentives Program (WHIP)

WHIP was established in 1998 and reauthorized in 2002 by the Farm Security and Rural Investment Act of 2002. Through WHIP, NRCS works in cooperation with private landowners and operators, conservation districts, and Federal, State, and Tribal agencies to provide technical and financial assistance for developing upland, wetland, riparian, and aquatic habitat areas on eligible properties. NRCS works in conjunction with the participant to develop a wildlife habitat plan, which becomes the basis of a cost-share agreement between NRCS and the participant. Generally, participants voluntarily limit future use of the land for a specified amount of time, while still retaining private ownership rights. WHIP, like CRP, is funded through the Commodity Credit Corporation. If land is considered eligible, NRCS determines further eligibility based on one or more of the following designations:

- Habitat areas for wildlife species with declining or significantly reduces populations,
- Practices beneficial to fish and wildlife that may not otherwise be funded, or
- Wildlife and fishery habitats identified by the appropriate local and state agencies and tribes within each state.

Resource Conservation and Rangeland Development Program (RCRDP)

RCRDP's purpose is to provide financial assistance to eligible applicants toward implementation of resource management projects, including conserving water and soil resources, promoting efficient and beneficial use of water resources through TMDL implementation, and improving riparian areas for multiple use. The program offers both loans and grants with top priority given to applicants on a 303(d) listed stream with a completed TMDL. Applicants are required to match a designated amount of the cost of the resource management project, which can be met through work performed on the project and

implementation of the project itself. The RCRDP loan and grant program is administered by the Idaho Soil Conservation Commission, which convenes several times during the year to discuss and decide on eligible applicants and award disbursements.

Habitat Improvement Program (HIP)

Sponsored by the Idaho Department of Fish and Game, the HIP provides technical and financial assistance to public land managers and private landowners interested in enhancing upland game bird and waterfowl habitat. Fish and Game personnel work in conjunction with landowners to formulate the most effective use of the land and cost-sharing agreement. Projects are tailored to the HIP, though the scope of any individual project must incorporate available land, water, and specific needs of the local wildlife.

Environmental Quality Incentives Program (EQIP)

EQIP is a voluntary conservation program administered by the NRCS. Like the WHIP, EQIP was re-authorized by the 2002 Farm Bill. The program's purpose is to support environmental quality and production agriculture as compatible goals. Financial and technical assistance is provided for help with structural and management conservation practices on agricultural lands. Additionally, incentive payments are often used to encourage farms to adopt BMP's such as nutrient management, manure management, and pasture management to name some examples. Eligible resource categories include, but are not limited to, Animal Feeding Operations (AFO)/Confined Animal Feeding Operations (CAFO)/Livestock Winter Feeding Operations, dry cropland, grazing land, and surface water source (irrigated cropland). Cost-sharing is available for up to 75% of the cost of eligible conservation practices.

Pheasants Forever (PF)

Pheasants Forever is a non-profit conservation organization founded in 1982 in response to the continuing decline of the ring-necked pheasant population. PF is comprised of a distinctive system of county chapters that reinvest membership fees toward local habitat projects. PF's goal is to protect, enhance, and restore wildlife habitat by establishing and backing local and regional habitat projects. Local chapters also develop, distribute and foster conservation education in addition to acquiring and preserving critical habitat through public land acquisition open to public hunting. PF works closely with the FSA, NRCS, and USDA toward protecting and restoring pheasant and local upland wildlife habitats.

This is not an all-inclusive list of funding sources. It is intended to provide information on programs and funding sources that are commonly used in conservation practices. The sources listed above are those that are already being utilized in the Tammany Creek vicinity or other nearby areas. This list is included in this plan to assist future project funding.

6.2 Tammany Creek Public Outreach and Education

Public outreach and education is essential to the success of watershed improvement efforts. Efforts aimed at increasing public awareness and involvement will be continued where they exist and furthered through this plan in order to accelerate and facilitate implementation. Community education and outreach has been ongoing throughout the watershed since the 1980s. The NPSWCD, NRCS, Nez Perce County, and Hells Gate State Park have completed

a variety of educational activities. Additional educational and outreach activities will be pursued through the activities proposed in this implementation plan.

6.2.1 Public Outreach

The involvement of the Tammany (WAG) is crucial in the development and implementation of this plan. WAG membership includes representatives from the agricultural community and other landowners in the watershed as well as city, county, state, and tribal representatives. The WAG provided input, through open public meetings, that has been included in this implementation plan. Other meeting attendees included representatives from Nez Perce County Extension, Nez Perce County Planning and Zoning, the Nez Perce County Roads Department, City of Lewiston Planning, Palouse-Clearwater Environmental Institute, NRCS, NPSWCD, and other watershed residents. The Tammany WAG was consulted throughout the drafting of this plan and performed a final review prior to finalizing the document. The Tammany WAG reviewed both the City of Lewiston Urban Livestock BMP development proposal and the PCEI Restoration Project described below. The Tammany WAG will continue to play a major role in implementation and revising this plan as progress is made.

The Palouse-Clearwater Environmental Institute (PCEI), in their Restoration Project Proposal, plans to include the public throughout the course of their project. This is intended to be performed throughout the project schedule. A primary goal of the project, in addition to illustrating the value of wetlands and riparian areas, is to increase public awareness about water quality issues and stewardship.

The NPSWCD distributed a resource concern survey to residents of the Tammany Creek watershed. The survey is intended to evaluate the watershed's land uses and identify natural resource concerns. Survey results will be used to help prioritize efforts and assist future planning in the watershed (NPSWCD 2003)

6.2.2 Public Education

The NPSWCD hosts an Environmental Awareness Days program annually for Lewiston 6th graders. The two-day event, held at Hells Gate State Park, focuses on water quality-related educational issues. The NPSWCD and NRCS coordinate watershed-wide community meetings at least once each year focusing on watershed resource concerns. The NPSWCD and NRCS have additionally coordinated watershed, farm, and BMP tours throughout the last several years (Rasmussen 2003b).

The NPSWCD, in conjunction with Lewiston High School volunteers, produced a quarterly newsletter that was sent to the urban community. The newsletter addressed water quality issues related to urban land management. This newsletter was discontinued in September 2002 when funding for the volunteer program was lost. The NPSWCD currently publishes a bi-monthly newsletter that is distributed to residents of Nez Perce County. The newsletter provides information to landowners on natural resource issues and alternatives for resource protection (Rasmussen 2003b).

Public education will be employed by Nez Perce County as a tool to address issues associated with development and runoff. This approach is similar to the endorsement of voluntary BMPs and will address sedimentation issues associated with residential development and road design and drainage where no standards currently exist. Similarly, The Lewiston Orchards Irrigation District (LOID) developed a newsletter to educate the Orchards community on the top ten misconceptions of irrigation water supply and use. This newsletter addresses, among other issues, the over application of irrigation water that can cause gully formation in erodible areas.

Part of the City of Lewiston's Storm Water Management Plan includes a public education component. The first effort in public education through this plan is a newsletter the City has prepared explaining what the purpose of the Storm Water Program is, why it is being implemented, and what the program consists of. This newsletter is being distributed to Lewiston dwellings in May 2003 (Cutshaw 2003).

Other projects included in this plan have incorporated public education components. The City of Lewiston Community Development Department, in its Urban Livestock Best Management Practices Project Proposal, includes an educational follow-up component. The BMPs proposed for development are planned for use as a training element for local 4-H clubs. The proposal additionally intends to provide training to 4-H clubs on public outreach (Lewiston 2003).

The riparian restoration project proposed by PCEI will incorporate an educational component as well. Project updates will be provided through PCEI's quarterly newsletter. The newsletter and press releases will also increase awareness on riparian and wetland areas. Wide community involvement is further anticipated to increase public awareness on water quality issues and community stewardship responsibility (PCEI 2003).

6.3 Point Source Pollution Control Activities

There are no existing permitted point sources in the Tammany Creek watershed (IDEQ 2001). However, EPA recently implemented Phase II of its storm water plan, which requires permit coverage for storm water discharges from regulated small municipal separate storm sewer systems (MS4s) and construction activity disturbing between 1 and 5 acres of land.

Industrial sources, construction sites disturbing 5 or more acres of land, and separate storm sewer systems located in municipalities with populations of 100,000 or more were previously required to have a National Pollution Discharge Elimination System (NPDES) permit to discharge storm water to state waters. Phase II of regulations now requires smaller municipalities and construction sites disturbing one or more acres of land to obtain discharge permits. New storm water permit requirements will affect storm water runoff from the City of Lewiston and runoff from future construction sites in the watershed that disturb one or more acres of land.

6.3.1 City of Lewiston Storm Water Management Plan

The City of Lewiston submitted its Phase II Storm Water Plan to EPA March 5, 2003 (Cutshaw 2003). A portion of the Lewiston Orchards lies within the Tammany Creek

watershed. Natural drainage ways, roadside ditches, and some culverts currently drain neighborhoods in the Orchards. Systems in the Orchard only exist in Thain Road from Stewart to Linden Avenue, 8th Street from Preston to Linden Avenue, and 18th Street from Grelle to Alder Avenue (City of Lewiston 2003).

The development of a storm water management plan is expected to address high runoff and peak flows originating from the Orchards and, in effect, reduce the erosive forces affecting Tammany Creek. The City's Plan contains measures to increase public awareness on storm water, minimize illicit discharge to the storm water system, control construction site runoff, and promotes good housekeeping for municipal operations. The City of Lewiston plans to develop sediment and erosion control ordinances within two years of permit issuance, as well. The City of Lewiston is currently looking into the costs of expanding the storm water plan to include the Tammany Area of Impact. The intent is to address problem storm water areas contributing to erosion and sediment delivery in the Tammany Creek watershed (Cutshaw, City of Lewiston 2003).

6.3.2 Construction General Permits

Small construction permit applications from construction site operators were due March 10, 2003. Permits will require the use of practices that will minimize polluted runoff. Certain exemptions apply for small sites if construction will occur during a period of sufficiently low rainfall (USEPA 2000b). EPA's new Construction General Permit (CGP) for activities disturbing one or more acres of land is expected to be finalized in spring of 2003 (USEPA 2003). Any new construction occurring in the Tammany Creek watershed that disturbs one or more acres will be regulated under the Phase II requirements. This may protect Tammany Creek from future sediment contributions coming from construction sites outside city limits.

6.4 Non-point Source Pollution Control Activities

The SCC has formulated an Agricultural TMDL Action Plan that addresses TMDL needs on agricultural land. Under the direction of this Plan, the SCC is to develop and implement the agricultural component of TMDL implementation plans. This implementation plan has been developed cooperatively with the SCC in order to incorporate the agricultural component with other components of implementation.

Issues associated with runoff have been the focus of discussions among City of Lewiston, Nez Perce County, NRCS, and the Lewiston Orchards Irrigation District (LOID) representatives. Specific problems and problem areas have been identified. Solutions have been proposed and are included in this plan. These are addressed through residential area and road maintenance activities.

6.4.1 Agriculture

The agricultural component of this implementation plan consists of the PL-566 Watershed Protection Plan and Supplement in combination with the Tammany Creek Watershed Project (CWA Section 319 grant). The treatment included in the plan is summarized in this document. Details can be obtained from the original documents, which are available for viewing from the Nez Perce Soil and Water Conservation District, USDA Service Center, Lewiston, Idaho.

The latest Five-Year Resource Conservation Plan from the NPSWCD prioritizes ongoing activities and watersheds on the State of Idaho's TMDL list. This plan is effective from 2003 to 2008, and its goals coincide with the goal of this plan (NPSWCD 2003). As part of this plan, agricultural BMP activities will continue in the Tammany Creek watershed under the direction of the NPSWCD.

The Five-Year Plan also includes goals of obtaining more technical assistance for project implementation (Rasmussen 2003b). Efforts will further be focused on other rural lands as well as urban and suburban activities. The NPSWCD's Tammany Creek Watershed Project has been approved for Clean Water Act CWA Section 319 funding for fiscal year 2003. The City of Lewiston Community Development Department has applied for CWA Section 319 funding for fiscal year 2004 to address urban livestock and develop BMPs to alleviate sediment delivery to the stream and the magnitude of peak flows. Individual projects are summarized below.

The PL-566 Plan and the 1998 Supplement were written with the intent of addressing the agricultural portion of the watershed. Land treatment measures implemented through the original plan are ongoing. Treatment includes agronomic practices, stabilization and erosion control structures, and riparian land conservation practices. PL-566 funds for further implementation of the 1998 supplement will allow implementation of treatment measures summarized in Table 7 below. This funding is currently pending congressional approval.

Table 7. PL-566 Treatment Measures (from NRCS *et al.* 1998)

Land Treatment Practice	Cost-Share Rate	Years Paid	Unit Cost (\$)	Units	Cost-Share Total (\$)
Buffer Strip	65%	1	200/Ac	10	1,300
Channel Vegetation (tree planting)	65%	1	2.50/Lf	4,000	6,500
Critical Area Planting	65%	1	610/Ac	11	4,360
Diversion	65%	1	1.10/Lf	7,500	5,360
Dike	65%	1	1.10/Lf	4,500	3,220
Fencing, CAFOs	65%	1	.95/Ft	11,250	6,950
Fencing, Riparian	65%	1	.95/Ft	18,650	11,520
Filter Strip	65%	1	200/Ac	10	1,300
Fish Stream Improvement	65%	1	650/Ea	16	6,760
Grade Stabilization Structure	65%	1	1,650/Ea	67	71,860
Heavy Use Area Protection	65%	1	500/Ea	8	2,600
Livestock Exclusion	65%	5	10/Ac	12	390
Nutrient Management	65%	3	2/Ac	7,000	27,300
Pasture and Hayland Planting	65%	1	100/Ac	100	6,500
Pesticide Disposal System	65%	1	1,000/Ea	30	19,500
Pest Management	65%	3	1/Ac	7,000	13,650
Pond	65%	1	2,000/Ea	6	7,800
Proper Grazing Use	65%	5	\$6.50/Ac	6	\$130
Record Keeping	65%	3	\$0.25/Ac	7,000	3,410
Reservoir Tillage	65%	3	12/Ac	2,250	52,650
Riparian (Floodplain) Easement	50%	1	5/Ft	25,000	62,500
Sediment Basin	65%	1	1,610/Ea	225	235,460
Septic System Testing	65%	2	50/Ea	20	1,300
Slot Tillage	65%	3	15/Ft	1,000	29,250
Soil Testing	65%	3	60/Ea	1,000	117,000
Stockwater Development	65%	1	1,700/Ea	34	37,570
Streambank & Shoreline Protection	65%	1	25/Ft	4,000	65,000
Stream Channel Stabilization	65%	1	100,000/Ea	6	390,000
Structure for Water Control	65%	1	1,650/Ea	10	10,730
Subsoiling	65%	3	17/Ac	11,000	364,650
Water & Sediment Control Basin	65%	1	1,500/Ea	200	195,000
Waterway (Grassed)	65%	1	810/Ac	5	2,630
Waterway (rock lined)	65%	1	10/Ft	840	5,460
Waste Storage Pond	65%	1	2,240/Ea	4	5,820
Waste Storage System	65%	1	1,000/Ea	10	6,500
Well Testing	65%	10	150/Ea	50	48,750
Wetland Development/Restoration	65%	1	20,000/Ea	2	26,000
Wildlife Upland Habitat Mgt	65%	5	4/Ac	200	2,600
Wildlife Wetland Habitat Mgt	65%	5	\$4/Ac	10	130
Total					\$1,859,410

Additional treatment measures not eligible for PL-566 funds will be implemented using CWA Section 319 funds, funds from the Idaho State Habitat Improvement Project (HIP), RCRDP, WQPA; CRP; and Pheasants Forever.

Cropland

The NPSWCD was approved for CWA Section 319 funding for the Tammany Creek Watershed Project in 2002 to address cropland sheet and rill erosion. The project has an objective of reducing sediment input to Tammany Creek. BMPs for implementation through

the Tammany Creek Watershed Project were selected based on the 1998 NRCS watershed assessment. Specific activities will include direct seeding, grade stabilization structures, and erosion control structures (NPSWCD 2002). Sheet and rill erosion reduction in areas with high relative erosion rates is best achieved through direct seeding practices. In addition, grade and erosion control structures are needed to break up the long slopes in the treatment area. The proposed treatment area for the project consists of 12,800 acres. Table 8 displays estimated costs and load reductions (relative to the treated area) for identified BMPs.

Table 8. NPSWCD CWA Section 319 Grant Cropland BMP Summary (from NPSWCD 2002)

BMP	Installation Cost	Units	Load Reduction
Direct Seeding	\$40/acre	2,000	56%
Grade Stabilization Structures	\$1,500 each	2	80%
Erosion Control Structures	\$3,000 each	5	80%

The NPSWCD plans to continue efforts in the watershed through a phase II proposal aimed at further urban, septic, and road improvement needs (NPSWCD 2002).

Livestock Operations

The NPSWCD's Animal Feeding Operation Inventory provides the basis for treatment in rural areas and operations adjacent to Tammany Creek. Of the 53 livestock operations in the watershed, 53% had 10 or fewer animals typically confined to less than 10 acres. In addition, 26% were allowing direct access to the stream and provided no alternate water source, and 50% needed runoff containment measures. The NRCS, NPSWCD, and ISDA continue to work with landowners to implement BMPs for livestock operations. However, not all operations can be addressed immediately. Prioritization of operations needing assistance and a shortage of technical staff leaves some landowners without the technical assistance they need in a timely manner. The NPSWCD intends to increase its technical staff to alleviate this problem and their Five-Year Plan prioritizes animal feeding operation treatment.

The Tammany WAG identified a gap in animal feeding operation treatment. The NPSWCD, ISDA, ISCC, and NRCS work with operators of livestock operations that are considered agricultural producers – meaning that they make the majority of their income from the agricultural activity. Operations that are adjacent to Tammany Creek can also be addressed by these agencies. Currently, there is not an agency that is assigned the duty of working with small scale animal feeding operations that occur further away from Tammany Creek, such as those in the Lewiston Orchards.

The Lewiston Orchards was a separate community from the City of Lewiston until 1969, when the City of Lewiston annexed the Orchards. Much of the Lewiston Orchards currently is zoned as Low Density Residential w/Livestock (Murray 2003). This zoning allows residents in these portions to keep livestock, although the primary land use is residential.

The City of Lewiston Area of Impact in the Tammany Creek watershed extends to one quarter mile south of the Tammany Creek Road center line (City of Lewiston 1999). This area is shown in Figure 4. Tammany Creek runs along side Tammany Creek Road in the Area of Impact. Much of the City of Lewiston Area of Impact is zoned as Agricultural Transitional in the Tammany Creek watershed, which permits general farming, with the exception of feedlots outright. Conditional use permits may be obtained in this zone for stabling animals and riding arenas, among other uses (Nez Perce County 1991).

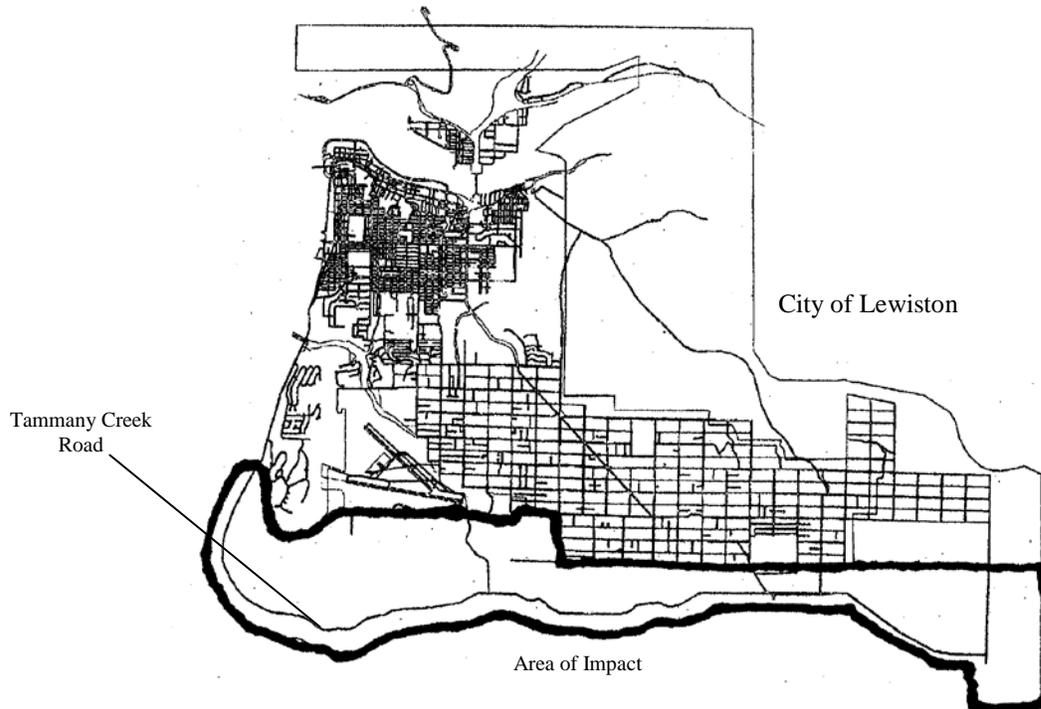


Figure 4. Tammany Creek Area of Impact (From City of Lewiston 1999)

The City of Lewiston Community Development Department has applied for CWA Section 319 funding for fiscal year 2004. The proposed project will result in the development of urban livestock BMPs for properties less than 5 acres in Lewiston City Limits in order to control polluted runoff originating from pastures and other livestock holding areas in the Lewiston Orchards. The BMPs will be recommended to Nez Perce County for adoption in the Lewiston Area of Impact (City of Lewiston 2003).

The goal of the project is to reduce sediment contributions from runoff as well as in-stream erosion caused by excess peak flows. By reducing the amount of runoff occurring immediately after precipitation, containment of urban livestock runoff will alleviate the magnitude of peak flows reaching Tammany Creek. This will reduce the in-stream erosion that accompanies these peak flows currently. The project is pending approval for funding. The NPS project proposal and associated budget is included with this document as Appendix A.

6.4.2 Rural Roads

The Nez Perce County Road Department performs annual road maintenance, cleaning sediment from road drainage systems, as need dictates. The annual schedule is dependent upon findings from field visits performed as weather permits and changes from year to year. The Road Department removes excess sediment from roadside ditches and culverts. Culverts may be cleared of sediment either by hand or by flushing the culverts with water. Maintenance of culverts and bridges does not require a permitting process, but new construction requires a joint application for a Idaho Stream Alteration/US Army Corps section 404 permit (Black 2003b). Any activity that requires application for a section 404 permit in the future will also require 401 certification by the State of Idaho. The 401 certification process is described in section 5.6.

The Tammany WAG recommends, as part of implementation, that the Nez Perce County Roads Department schedule maintenance and construction activities in the Tammany Creek watershed to accommodate the needs of Tammany Creek. The TMDL analysis indicates that sediment reductions are needed from December through June. Road maintenance and construction activities are recommended to occur outside this time frame.

The Tammany WAG has also requested a county road culvert inventory, which was completed in April 2003. Information from this inventory is an initial step in identifying erosion problems associated with culverts. The County Roads Department is currently compiling a list of problem areas associated with culverts and cut banks as they relate to sediment delivery to Tammany Creek. This list will be used to further define critical treatment areas and develop solutions. The Road Department will work with the NRCS and IDEQ in developing these solutions. The estimated budget associated with inventory and assessment activities is summarized in Table 9 below. This does not include costs associated with formulating solutions for critical areas. This information will be added as it becomes available.

Table 9. Nez Perce County Road Inventory and Assessment Budget Summary

Item	Cost	Total
Culvert survey (80 hours data collection)	\$21.04/hour	\$1,683.20
Culvert location map (6 hours map creation)	\$32.00/hour	\$192.00
Map printing (36")	\$.15/inch	\$5.40
Critical area assessment (80 hours)	\$21.04/hour	\$1,683.20
	Total	\$3,563.80

Nez Perce County Planning and Zoning is working with the NPSWCD to develop an educational pamphlet addressing proper road construction and drainage for individuals constructing private access roads and driveways. These pamphlets will be distributed through the Nez Perce County Planning and Zoning Department. The estimated budget for development of the pamphlets is summarized in Table 10.

Table 10. Nez Perce County Development Guidance Pamphlet Budget Summary

Item	Cost	Total
Pamphlet compilation/formatting (80 hours)	\$40.00/hour	\$3,200.00
Pamphlet printing (2,000 copies)	\$678.00	\$678.00
Total		\$3,878.00

6.4.3 Residential Areas

The Tammany Creek watershed contains portions of the Lewiston Orchards, suburban developments outside city limits, and rural residential areas that are primarily located on or near Tammany Creek itself. For the purposes of distinguishing these areas in this plan, the terms *urban*, *suburban*, and *rural* are used. Areas in Lewiston city limits are referred to as urban. Areas outside city limits adjacent to the Orchards or those developed as subdivisions are referred to as suburban. Other residences in the Area of City Impact and otherwise outside city limits are considered rural. The City of Lewiston has jurisdiction over development within city limits. Nez Perce County has jurisdiction over development outside city limits. Lewiston and Nez Perce County work together to address the Area of City Impact, although enforcement ultimately lies in the County’s jurisdiction.

Suburban and Rural Development

Nez Perce County recognizes the potential impact of residential development on water resources in the county. Nez Perce County’s 1998 Comprehensive Plan states that conversion of agricultural land to residential use has been one of the most influential types of development in the county, and this development is expected to continue over the next twenty years. The plan further recognizes that performance standards applicable to development that could have a deleterious effect on the water should be established to protect water resources and prevent pollution. The Comprehensive Plan states that “in order to encourage the proper development of rural lands, special requirements and procedures should be included in the applicable county ordinances and other implementing measures (Nez Perce County 1998).”

Currently, there are no development standards outside Lewiston city limits. As an initial effort to alleviate sedimentation problems associated with residential development, the Nez Perce County Planning and Zoning Department is compiling an educational pamphlet addressing storm water considerations, as described in Section 5.4.2 above. This effort is simultaneous with the road and culvert educational pamphlet being developed with the NPSWCD. The pamphlets will be made available to individuals through the Nez Perce County Planning and Zoning Department.

Urban Development

The City of Lewiston, in their 1999 Comprehensive Plan, addresses the Area of City Impact along Tammany Creek as a specific neighborhood. In the plan, the City foresees annexing portions of the Tammany Creek watershed. However, the City states in this plan that development should not be “allowed to extend into the Tammany Creek valley itself.” The plan further states that the valley should be left as largely agricultural with the opportunity for some large home sites. The Comprehensive Plan does not permit a residential land use density of more than 5 units per acres (Lewiston 1999).

The City of Lewiston, at the request of the Tammany WAG, will expand their Storm Water Management Plan to include the Area of City Impact where runoff drains into the Tammany Creek watershed. The purpose is to identify and quantify storm water coming from the Lewiston Orchards through tributaries of Tammany Creek and to identify areas where detention for storm water may be beneficial. The City will work with the NRCS and the County in developing storm water sedimentation solutions. This teamwork will ensure that all considerations are covered in the development of solutions. The costs associated with expanding the plan are summarized in Table 11. Implementation of the expanded plan and associated costs are not included here, as this information is not currently available. Treatment proposed for storm water conveyance will dictate costs and may be included in the next revision of this plan.

Table 11. City of Lewiston Storm Water Management Plan Expansion Budget Summary

Item	Cost	Total
Software lease	\$1,000/year	\$1,000
120 hours (overhead + wages for plan development)	\$30/hour	\$3,600
Total		\$4,600

6.5 Riparian and Stream Channel Restoration

The Tammany Creek Watershed Protection Plan includes riparian planting, riparian fencing, and offsite watering facilities for livestock. These activities will continue to be pursued upon approval of continued funding from Congress. These activities, in combination with restoration planned by PCEI, will improve streambank stability and increase available vegetative filtering for runoff entering Tammany Creek. Riparian vegetation will, in the long-term, also provide shade to reduce stream temperatures.

PCEI has applied for CWA Section 319 funding for fiscal year 2004 to restore a minimum of a 1,500-foot section of Tammany Creek, working with landowners in the Tammany Creek watershed. Exact location of restoration work will be determined by landowner participation. The project will reduce bank erosion and provide a buffer for filtration of polluted runoff in the project area as well as provide habitat for aquatic species. In the long-term, this project will additionally alleviate high temperatures in Tammany Creek by providing vegetative shade. This project is pending approval for funding. The project proposal and associated budget is included as Appendix B.

6.6 Clean Water Act Requirements

Section 402 of the CWA requires a National Pollution Discharge Elimination System (NPDES) permit for discharge of pollutants into water bodies of the United States. NPDES permits establish limitations on such discharges and require the discharger to monitor the concentration of effluent components. Section 404 of the CWA requires activities that will result in the discharge of dredged or fill materials into water bodies to obtain a permit from the US Army Corps of Engineers. In Idaho, stream channel alterations are regulated by the Idaho Department of Water Resources (IDWR), under the authority of the Stream Channel Protection Act. Section 404 and Stream Channel Alteration permit applications are

submitted jointly to the Army Corps and IDWR. Stream Alteration/Section 404 permits will be required for any restoration activities in Tammany Creek that involve alterations to the stream channel itself.

6.6.1 Section 401 Certification

Section 401 of the CWA requires applicants for federal permits, such as NPDES or Section 404 permits, to provide the permitting agency certification from the state that the discharge will comply with water quality standards. The IDEQ, in issuing 401 certification for the Tammany Creek watershed, intends to adhere to the requirements of the Tammany Creek TMDL (Barrett 2003). Section 303(d) of the CWA requires states to establish total maximum daily loads for pollutants identified at “a level necessary to implement the applicable water quality standards.” By issuing 401 certification in a way that is consistent with the Tammany Creek TMDL, IDEQ will be protecting the beneficial uses of Tammany Creek, in accordance with section 303(d) of the CWA.

7.0 TAMMANY CREEK TMDL IMPLEMENTATION MONITORING PLAN

Monitoring is necessary to determine the effectiveness of implementation. Data exists for Tammany Creek, as mentioned previously, from monitoring conducted by the NPSWCD, NRCS, and IDEQ. Future monitoring will be used to assess the progress of this plan through trend analysis. Point sources will require NPDES permits, which include monitoring requirements. IDEQ performs beneficial use status surveys through the Beneficial Use Reconnaissance Program (BURP). The NPSWCD and NRCS coordinate with the Idaho Association of Soil Conservation Districts (IASCD), the ISCC, and the Idaho State Department of Agriculture to conduct BMP effectiveness and water quality monitoring.

7.1 Point Source Monitoring

In the event that point sources are permitted in the Tammany Creek watershed, the NPDES permits will establish effluent limitations. In order to ensure that these limitations are achieved, the discharger will be required to monitor the concentrations in the effluent, keep a record of these measurements, and report monitoring results to EPA (Federal Water Pollution Control Act of 1987, title IV, sect 402)

7.2 Non-point Source Monitoring

Results from future BURP surveys will provide glimpses of the beneficial use support status in Tammany Creek in the long term. This, in addition to BMP effectiveness and individual project monitoring results, will illustrate the degree to which the goal of this implementation plan is being realized in the short- and long-term. BMP effectiveness monitoring will be performed by the IASCD in the future, working in conjunction with the NPSWCD, NRCS, ISCC, and the ISDA. Future TSS levels taken from samples will be useful for comparison with data used in the TMDL analysis.

The NPSWCD has been performing soil quality tests in the watershed for the past two years and will continue for at least three more. The results of these tests will allow comparison of infiltration rates each year and will show progress in alleviating peak flow runoff.

Comparison of future erosion rates on cropland with current and historical erosion rates will be additionally useful in trend analysis and the overall effectiveness of the agricultural component of this plan. This data will be provided by NRCS staff from the Lewiston Field Office, when landowner permission is granted for data use (Rasmussen 2003).

The City of Lewiston Community Development Department's project proposal monitoring would occur from 2004 through 2006, at a minimum. Sampling to analyze sediment levels in Tammany Creek downstream from the project implementation area will be employed. The City may incorporate longer term monitoring into an annual monitoring program and will consider the possibility of using Tammany Creek monitoring for hands-on activities for 4-H participants (Lewiston 2003).

7.3 Riparian Restoration Monitoring

In addition to monitoring performed by state and local agencies, PCEI plans to monitor the success of their proposed riparian restoration project using photo points. Photos will be taken at specified points in the project area on a regular schedule in order to track the success of channel stabilization and riparian vegetation plantings (PCEI 2003).

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9.0 ACRONYMS

BMP	Best Management Practice
BURP	Beneficial Use Reconnaissance Program
CWA	Federal Water Pollution Control Act of 1987, or Clean Water Act
EPA	United States Environmental Protection Agency
IASCD	Idaho Association of Soil Conservation Districts
IDEQ	Idaho Department of Environmental Quality
IDWR	Idaho Department of Water Resources
ISDA	Idaho State Department of Agriculture
MS4s	Municipal separate storm sewer systems
NPDES	National Pollution Discharge Elimination System
NPS	Non-point Source pollutant
NPSWCD	Nez Perce Soil and Water Conservation District
NRCS	Natural Resource Conservation Service, formerly SCS
PCEI	Palouse-Clearwater Environmental Institute
SCC	Soil Conservation Commission
SCS	Soil Conservation Service, presently NRCS
TMDL	Total Maximum Daily Load
WAG	Watershed Advisory Group