

Table 26 (cont.)

Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
Goal 1: Reduce nutrient and bacteria loads, from fecal contamination, in lakes and streams						
Objective 1.1: Decrease potential nutrient and bacteria loads from discharging off-lot , i.e., point source, home/semi-public sewage disposal systems (HSDSs) and (SPSDSs)						
Priority Areas: Subwatersheds 2 and 3; especially along SR. 619, S.R. 241 and to the east of S.R. 93						
a. Establish a permit system to facilitate HSDS and SPSPDS inspection and maintenance	State and Local Health Departments OEPA	Local Property/Home Owner Operation & Maintenance Fee	3 years	Lower number of malfunctioning/failing HSDSs and SPSPDSs	Number of systems inspected, pumped, and/or repaired	
b. Seek funding assistance and repair or replace faulty HSDSs and SPSPDSs	Local Health Departments	NPS Program (ODNR) WPCLF WPCLF (Linked Deposit) PL-566 CWA Section 319 NPS (OEPA)	3 years	Lower number of malfunctioning/failing HSDSs and SPSPDSs	Number of systems repaired or replaced	
c. Provide support to research cost effective and environmentally-sound alternatives to control water pollution from HSDSs and SPSPDSs, e.g., constructed wetlands	Local Health Departments NEFCO	WPCLF WPCLF (Linked Deposit) PL-566 R&D Grant	3 years	Viable alternatives to control water pollution from HSDSs and SPSPDSs, especially where current technology is limited, e.g. poor soils	Types of research conducted, data collected, and results	

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d. Establish education efforts to increase public awareness on faulty HSDSs and SPSDSs 1) Door-to-door survey 2) Distribute information materials where needed, e.g., video "Dollars Down the Drain", soil pipe sticker to remind homeowners when to pump septic tanks 3) Hold public meetings 4) Set up information booths at county/local fairs	Local Health Departments NEFCO	NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months to 1 year	Increased awareness of water quality impacts associated with malfunctioning/failing HSDSs and SPSDSs	1) Number surveys completed 2) Number of information materials distributed 3) Number of public meetings held 4) Number of fairs with information booths	
e. Promote the extension of sewers in the watershed, especially where high concentrations of HSDSs and SPSDSs are located on poor soils for septic systems	State and Local Governments County Sanitary Engineer State and Local Health Departments	WPCLF Local Property/Home Owners (through assessments) County/Local Government	3 years	Lower number of Malfunctioning/failing HSDSs and SPSDSs	Level of interest in extending existing sewered areas and future plans/projects	
Objective 1.2: Decrease potential nutrient and bacteria loads from failing on-lot (non-discharging) home/semi-public sewage disposal systems (HSDSs) and (SPSDSs)						
Priority Areas: Subwatersheds 2 and 3, especially along SR. 619, S.R. 241 and to the east of S.R. 93						
a. Establish a permit system to facilitate HSDS and SPSDS inspection and maintenance	State and Local Health Departments OEPA	Local Property/Home Owner Operation & Maintenance Fee	Once every 3 years	Lower number of malfunctioning/failing HSDSs and SPSDs	Number of systems inspected, pumped, and/or repaired	
b. Seek funding assistance and repair or replace faulty HSDSs and SPSDSs	Local Health Departments	NPSProgram (319 Grants) WPCLF WPCLF (Linked Deposit) PL-566 CWA Section 319 NPS	3 years	Lower number of malfunctioning/failing HSDSs and SPSDSs	Number of systems repaired or replaced	

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c. Provide support to research cost effective and environmentally-sound alternatives to control water pollution from HSDSs and SPDSs, e.g., constructed wetlands	Local Health Departments NEFCO	NatureWorks NPS Program (ODNR) WPCLF WPCLF (Linked Deposit) PL-566 R&D Grant CWA Section 319 NPS (OEPA)	3 years	Viable alternatives to control water pollution from HSDSs and SPDSs, especially where current technology is limited, e.g. poor soils	Types of research conducted, data collected, and results	
d. Establish education efforts to increase public awareness on faulty HSDSs and SPDSs 1) Door-to-door surveys 2) Distribute information materials where needed, e.g., video "Dollars Down the Drain", soil pipe sticker to remind homeowners when to pump septic tanks 3) Hold public meetings 4) Set up information booths at county/local fairs	Local Health Departments NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months to 1 year	Increased awareness of water quality impacts associated with malfunctioning/failing HSDSs and SPDSs	1) Number of surveys completed 2) Number of information materials distributed 3) Number of public meetings held 4) Number of fairs with information booths	
e. Promote the extension of sewers in the watershed, especially where high concentrations of HSDSs and SPDSs are located on poor soils for septic systems	State and Local Governments County Sanitary Engineer State and Local Health Departments	WPCLF Local Property/Home Owners (through assessments) County/Local Government	3 years	Lower number of Malfunctioning/failing HSDSs and SPDSs	Level of interest in extending existing sewer areas and future plans/projects	

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Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
Objective 1.3: Reduce nutrient and bacteria loads from livestock						
Priority Areas: To be determined						
a. Identify and assess all livestock operations in the watershed and map target areas	USDA/NRCS ODA OSU Extension NEFCO County SWCDs	NatureWorks CWA Section 319 NPS (OEPA)	3 months	Stronger understanding of where potential sources of pollution are located and their severity	Map and list of all livestock operations in the watershed with target areas	
b. Plan and implement manure management plans on agricultural operations	USDA/NRCS ODNR/DSWC County SWCDs	EQIP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF (Linked Deposit) PL-566 R&D Grant	1 year	Reduced levels of nutrient and bacteria contamination	Number of manure management plans implemented and degree of success	
c. Establish settling, grass filtration or soil infiltration systems around animal feeding and containment areas, e.g., buffer strips	USDA/NRCS ODNR/DSWC County SWCDs	EQIP CRP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF (Linked Deposit) PL-566 CWA Section 319 Grant (OEPA)	1 year	Reduced agricultural runoff into lakes and streams	Number of buffer strips established and maintained	
d. Implement fencing and development of off-stream watering facilities to limit or exclude livestock from stream areas	ODNR/DSWC County SWCDs	EQIP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF (Linked Deposit) PL-566 CWA Section 319 Grant (OEPA) SIP	1 year	Reduce point source pollution by livestock	Number of off-stream watering facilities developed and length of fencing around lakes and streams	

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Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
e. Fund alternative technology for farm waste treatment, e.g., constructed wetlands	ODA ODNR/DSWC County SWCDs	EQIP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF (Linked Deposit) PL-566 R&D Grant CWA Section 319 Grant (OEPA)	3 years	Viable alternatives to treat manure effectively	Types of research conducted, data collected, and results	

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Objective 1.4: Reduce excess (those over MCLs and MCL goals) nutrient and bacteria loads from wastewater treatment plants (WWTPs)						
Priority Areas: Subwatersheds 2 and 3, especially along S.R. 93						
a. Require stricter final effluent self-monitoring requirements for WWTPs under 0.25 mgd 1) Add monitoring of nitrate and nitrites to the list of parameters to be tested for WWTPs under NPDES permits with design flows <0.25 mgd 2) Add monitoring of phosphorus to the list of parameters to be tested for WWTPs under NPDES permits with design flows <0.1 mgd b. Support Ohio EPA's statewide general permit to regulate treated wastewater discharges from small systems (≤0.025 mgd)	OEPA/DSW Local Health Departments NEFCO		1 year	Better understanding and control of pollutants from WWTPs with design flows less than .25 mgd	Additional nutrient parameters added and statewide general permit recognized by local government and residents	
Objective 1.5: Reduce excess nutrients and bacteria from natural sources						
Priority Area: Subwatershed 3, with an emphasis on landowners with riparian or shoreline property						
a. Educate shoreline and riparian landowners on ways to deter waterfowl from grazing on their property 1) Distribute information pamphlets	OEPA ODNR/Div. of Wildlife County SWCDs NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months to 1 year	Reduced nutrients and bacteria from waterfowl	1) Number of information pamphlets distributed	
b. Educate pet owners about proper disposal of pet wastes 1) Distribute information pamphlets	County SWCDs NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months to 1 year	Reduced nonpoint source pollution from domestic animal waste	1) Number of information pamphlets distributed	

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Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
Goal 2: Decrease levels of toxic substances (heavy metals, oil and petroleum products, etc.) entering surface and/or ground water						
Objective 2.1: Decrease contributions of toxic substances from landfills and dumps						
Priority Area: Subwatershed 4						
a. Identify priority sites for additional investigation and remediation efforts 1) Conduct adequate monitoring to determine the sources(s), pollutant(s) and severity of water quality degradation 2) Promote appropriate reuse of contaminated sites	OEPA/DERR State and Local Health Departments Private Sector	WPCLF CWA Section 319 NPS (OEPA) Private Sector	1 year	1) Acquire a defensible base of information for future action 2) Decreased health hazards from contaminated sites	1) Number of water samples collected, results and conclusion(s) 2) Number and types of actions taken to ensure appropriate reuse of contaminated sites	
b. Initiate volunteer clean-up days for illegal dumping areas	OEPA Local Health Departments Grassroots/citizen-based Groups	NPS Education Grant NPS Program (ODNR) OEEF WPCLF CWA Section 319 NPS (OEPA)	2 months per clean-up day	Lower number of illegal dumps	Number of clean-up days organized and amount of refuse collected and hauled to appropriate facilities	
c. Enforce stricter penalties against illegal dumping	Local Governments		1 year	Decrease illegal dumping	Stricter penalties imposed	
d. Establish hazardous waste drop-off facilities; where needed, for local communities and/or hazardous waste pick-up days	Solid Waste Districts State and Local Health Departments Private Sector	NatureWorks NPS Program (319 Grants) WPCLF PL-566 CWA Section 319 NPS Private Sector	1 year	Decrease illegal dumping	Number of drop-off facilities established or pick-up days held	

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Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
Objective 2.2: Decrease levels of toxic substances from industrial land use areas						
Priority Areas: Subwatersheds 1 and 2						
a. Identify by-products of industrial processes taking place in the watershed and educate owners/operators about the hazards of negligent management of such substances	OEPA State and Local Health Departments Private Sector	NatureWorks NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months to 1 year	Lower releases of toxic substances from industrial operations	A listing of identified by-products from industrial processes and names and numbers of owners/operators educated about the hazards of negligent management	
b. Educate owners/operators of industrial facilities about the benefits of implementing preventive and control measures (BMPs) to reduce pollutants	Local Governments OEPA NEFCO	NatureWorks NPS Education Grant NPS Program (ODNR) OEEF WPCLF (Linked Deposit) PL-566 CWA Section 319 NPS (OEPA)	6 months to 1 year	Increased awareness about the benefits of BMPs and reduced levels of pollutants from industrial land use areas	List of contacts and number of operations that have implemented BMPs to reduce pollutants	
Objective 2.3: Decrease levels of toxic substances from storm water runoff						
Priority Areas: Subwatersheds 1 and 3						
a. Implement a regional/watershed-based storm water management plan	ODNR/DSWC County SWCDs County Engineer NEFCO	EQIP NatureWorks NPS Program (ODNR) WPCLF PL-566 CWA Section 319 NPS (OEPA) Storm water utility	3 years	Improved water quality and moderated peak storm water flows	Completion of the plan and level of participation	
b. Implement NPDES Phase II Storm Water Program	Local Governments	WPCLF Storm water utility		Improved water quality and moderated peak storm water flows	Implementation of program	

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<p>c. Implement preventative measures to reduce storm water runoff</p> <ol style="list-style-type: none"> 1) Educate homeowners on proper use and disposal of household hazardous waste and the importance of proper operation and maintenance of stormwater control devices, e.g., debris and sediment removal from channels, pipes and pumps 2) Begin a storm drain stenciling program 3) Limit the amount of impervious areas for commercial establishments 4) Organize hazardous waste drop-off facilities; where needed, for local communities and/or hazardous waste pick-up days 	<ol style="list-style-type: none"> 1) Local Health Departments County SWCDs NEFCO Solid Waste Districts Private Sector 2) County SWCDs NEFCO 3) Local and County Planning and Zoning Boards 4) Solid Waste Districts State and Local Health Departments Private Sector 	<p>NatureWorks NPS Education Grant NPS Program (ODNR) OEEF WPCLF CWA Section 319 NPS (OEPA) Private Sector</p>	<p>2 years</p>	<p>Lower levels of toxic substances entering the environment from storm water runoff</p>	<ol style="list-style-type: none"> 1) Education efforts conducted 2) Development of and participation in a storm drain stenciling program 3) Permits or ordinances in effect 4) Number of drop-off facilities or pick-up days organized 	

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<p>d. Implement control measures to reduce storm water runoff and/or improve water quality</p> <ol style="list-style-type: none"> 1) Research first flush or end-of-pipe treatment requirements, e.g., stormceptor vortex 2) Require catch basins for parking lots over a specified size 3) Install detention and/or retention ponds and treatment systems for water quality improvement 4) Route drainage from impervious surfaces to pervious areas (as soils allow) 5) Routine/scheduled street sweeping 	<ol style="list-style-type: none"> 1) OEPA/DWPC County Engineer Private Sector 2) Local and County Planning and Zoning Boards County Engineer 3) ODNR/DSWC County SWCDs County Engineer Private Sector 4) ODNR/DSWC County SWCDs County Engineer Private Sector 5) ODOT 	<p>EQIP NatureWorks NPS Program (ODNR) WPCLF WPCLF (Linked Deposit) PL-566 R&D Grant CWA Section 319 NPS (OEPA) Private Sector</p>	<p>2 years</p>	<p>Lower levels of toxic substances entering the environment from storm water runoff</p>	<ol style="list-style-type: none"> 1) Requirements established and enacted 2) Requirements established and enacted 3) Number of ponds and treatment systems installed 4) Number of drainage areas diverted from impervious surfaces to pervious areas 5) Number of communities participating in routine/scheduled street sweeping 	
<p>e. Locate historical spills and accidental release sites in the watershed</p>	<p>OEPA/DERR NEFCO</p>	<p>NatureWorks CWA Section 319 NPS (OEPA)</p>	<p>3 months</p>	<p>Insight regarding locations where there is a higher risk for polluted storm water runoff</p>	<p>Up-to-date list and map of spills and accidental releases in the watershed</p>	
<p>Objective 2.4: Decrease releases of toxic substances from underground storage tanks (USTs) and oil and gas pipelines</p>						
<p>Priority Areas: Subwatersheds 2, 3, 4 and 5</p>						
<p>a. Encourage regulations requiring USTs, over a certain age, to be replaced by new tanks</p>	<p>SFM/BUSTR Local Government Lobbying Groups Private Sector</p>		<p>1 year</p>	<p>Decrease releases from old USTs</p>	<p>Regulations developed and enacted</p>	

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Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
b. Identify UST problem areas and ensure that these areas are monitored adequately	SFM/BUSTR NEFCO Private Sector	NatureWorks NPS Program (ODNR) WPCLF (Linked Deposit) CWA Section 319 NPS (OEPA)	1 year	Insight regarding areas with a high potential for releases of pollutants and decreasing the risk	Number of problem areas identified and appropriate person(s) contacted to ensure adequate monitoring	
c. Encourage consumers to purchase gasoline/diesel from service stations that equip USTs with leak detectors or other protective mechanisms and identify these by a decal on the pump, such as the Buckeye Leaf Symbol	NEFCO Private Sector	NPS Education Grant NPS Program (ODNR) CWA Section 319 NPS (OEPA) Private Sector	1 year	Increase in service stations which equip USTs with protective mechanisms through consumer demand	Level of increased business for service stations with decals associated with protective mechanisms	
Objective 2.5: Increase awareness regarding the location and pollution potential of oil and gas pipelines in relation to drinking water wells						
Priority Areas: Subwatersheds 3 and 5						

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Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
<p>a. Identify all drinking water wells located within a prescribed distance of oil and gas transmission lines</p> <ol style="list-style-type: none"> 1) Sample a percentage of all drinking water wells for the presence or absence of petroleum hydrocarbons representative of oil and gas and/or their byproducts 2) Provide pipeline and drinking water well location information to community planning and zoning officials and planning commissions 3) Recommend disclosure of pipeline locations to any person(s) purchasing property located within a prescribed distance of the known pipeline(s) 4) Recommend the use of treated public water supply to service residences within a prescribed distance of a known pipeline 	<p>ODNR/Div. of Oil and Gas Community Planning and Zoning Officials Planning Commission NEFCO</p>	<p>NatureWorks NPS Program (ODNR) PL-566 CWA Section 319 NPS (OEPA)</p>	<p>3 years</p>	<p>More precise locations of oil and gas pipelines, detection of leaks or ruptures in pipelines, increased knowledge regarding pipeline location and potential to pollute drinking water wells, and availability of other water resources</p>	<p>Detailed maps of oil and gas pipeline locations in relation to drinking water wells, number of wells monitored each year and results, and information regarding pipeline locations and proximity to wells available</p>	

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Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
Objective: 2.6: Decrease ground water contamination from improperly constructed and/or abandoned drinking water wells						
Priority Areas: No specific areas identified at this time						
a. Identify wells abandoned prior to sealing requirements 1) Determine if wells were sealed properly 2) Properly abandon wells if needed	OEPA/DDAGW ODNR/DOW NEFCO State and Local Health Departments	NatureWorks NPS Program (ODNR) PL-566 CWA Section 319 NPS (OEPA)	3 years	Decrease ground water contamination from abandoned wells	List and map of all abandoned wells prior to sealing requirements 1) Number of these wells inspected for proper abandonment 2) Number of wells properly abandoned	
b. Seek proactive and consistent enforcement of well construction, maintenance and abandonment standards	OEPA/DDAGW ODNR/DOW State and Local Health Departments Private Sector		1 year	Decrease ground water contamination from wells	Level of enforcement and effectiveness of present standards	
c. Educate public and private well owners the hazards of ground water contamination and preventative measures 1) Distribute information pamphlets	OEPA/DDAGW ODNR/DOW State and Local Health Departments NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months to 1 year	Increased awareness of ground water contamination associated with active or abandoned wells	1) Number of pamphlets distributed	
d. Identify critical NPS pollution areas in close proximity to abandoned wells and implement BMPs to reduce contamination risks	OEPA/DDAGW ODNR/DOW State and Local Health Departments NEFCO Private Sector	EQIP CRP NatureWorks NPS Program (ODNR) WPCLF WPCLF (Linked Deposit) CWA Section 319 NPS (OEPA)	1 year	Decrease ground water contamination from abandoned wells	Critical areas identified and number and location of BMPs implemented to reduce contamination risks	

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Goal 3: Reduce impacts from sedimentation/siltation in lakes and streams						
Objective 3.1: Reduce soil erosion, transport, and deposition of sediment associated with construction sites						
Priority Areas: Subwatersheds 2, 3, 4 and 5; in close proximity to lakes and streams						

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Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
<p>a. Support preventative measures to reduce impacts from construction sites</p> <ol style="list-style-type: none"> 1) Encourage phasing of construction sites over a specified size 2) Develop and enforce zoning ordinances that restrict or require additional protective measures for development in sensitive areas, e.g., slopes >6%, wetlands, and slopes with high sediment yield 3) Initiate vegetative stabilization (seeding) of disturbed areas over a certain size and/or exposed for a specified length of time 4) Work with local communities to promote development that minimizes the percentage of impervious surfaces, such as open space zoning and cluster development 5) Assist communities with the development of township or municipal ordinances requiring construction sites to leave easements of a specified distance near shorelines of targeted wetlands and lakes and flood plains of targeted streams 	<ol style="list-style-type: none"> 1) County SWCDs Building Inspectors HBA 2) OEPA Local and County Planning and Zoning Boards Building Inspectors County Engineer Local Unit of Government 3) County SWCDs USDA/NRCS Building Inspectors 4) Local Planning and Zoning Boards County Engineer USDA/NRCS 5) Local Planning and Zoning Boards USDA/NRCS 	<p>State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF (Linked Deposit)</p>	<p>3 years</p>	<p>Reduce potential for sediment erosion, transport and deposition from construction sites</p>	<ol style="list-style-type: none"> 1) Number of construction sites phasing development 2) Zoning ordinances established and enacted 3) Locations with vegetative stabilization initiated 4) List of communities participating in promoting such development 5) List of townships or municipalities with ordinances established and enforced 	

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<p>b. Implement control measures to reduce impacts from construction sites</p> <ol style="list-style-type: none"> 1) Conduct frequent inspection of construction site erosion and sediment control BMPs and approved plans, i.e., SWPPPs 2) Require building controls for individual lots 3) Maintain vegetated buffer strips and riparian zones near construction sites 4) Promote the design of post-construction BMPs at construction sites, i.e., water quantity/water quality basins, constructed wetlands, planting and preserving trees, etc. 	<ol style="list-style-type: none"> 1) County SWCDs County Engineer 2) Local and County Planning and Zoning Boards County SWCDs County Engineer 3) County SWCDs Local Government Private Sector 4) County SWCDs, County Engineer USDA/NRCS 	<p>EQIP CRP NatureWorks NPS Program (ODNR) WPCLF WPCLF (Linked Deposit) CWA Section 319 NPS (OEPA) SIP</p>	<p>3 years</p>	<p>Reduce potential for sediment erosion, transport and deposition from construction sites</p>	<ol style="list-style-type: none"> 1) How often control plans are inspected 2) Requirements established and enacted 3) Number of buffer strips and riparian zones maintained 4) Number of post-construction BMPs implemented 	
<p>c. Work with SWCDs and building associations to identify pilot demonstration that utilize innovative erosion control and management practices</p>	<p>County SWCDs HBA County Engineer USDA/NRCS</p>	<p>EQIP CRP NatureWorks NPS Program (ODNR) WPCLF R&D Grant CWA Section 319 NPS (OEPA)</p>	<p>3 years</p>	<p>Viable alternatives to control water pollution from construction site</p>	<p>Number of pilot demonstrations tested and results</p>	
<p>d. Offer additional education for builders, developers, and contractors, i.e., new techniques, post-construction BMPs, etc.</p> <ol style="list-style-type: none"> 1) Hold seminars/workshops 2) Distribute information packets 	<p>County SWCDs ODNR/DSWC USDA/NRCS</p>	<p>NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA) Private Sector</p>	<p>1 year</p>	<p>Increased awareness of present and future practices to reduce construction site water quality impacts</p>	<ol style="list-style-type: none"> 1) Number of seminars/workshops held 2) Number of information packets distributed 	

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Objective 3.2: Reduce soil erosion transport, and deposition of sediment associated with agricultural areas						
Priority Areas: Subwatersheds 2, 4 and 5; in close proximity to lakes and streams						
a. Educate farmers about the benefits of implementing appropriate vegetative and tillage BMPs, especially with fields adjacent to headwater streams, to reduce the impacts associated with sediment, e.g., conservation tillage, conservation cropping sequence, contour strip cropping, and contour farming	ODNR/DSWC County SWCDs ODA USDA/NRCS	EQIP CRP State Cost Share Program NatureWorks NPS Program (ODNR) OEEF WPCLF (Linked Deposit) PL-566 CWA Section 319 NPS (OEPA)	6 months to 1 year	Reduced sediment loads entering waterways from agricultural areas	Level of participation in vegetative and tillage BMPs	
b. Implement appropriate structural BMPs to alleviate soil-related pollution 1) fencing and development of off-stream watering facilities to exclude livestock from lakes and streams 2) Establish grassed and forested buffer strips on farm croplands, especially adjacent to streams 3) Construct water and sediment control basins equipped with treatment systems for water quality improvement	ODNR/DSWC County SWCDs ODA USDA/NRCS	EQIP CRP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF (Linked Deposit) PL-566 R&D Grant CWA Section 319 NPS (OEPA) SIP	3 years	Lower soil-related pollution from agricultural areas	1) Number of off-stream watering facilities fenced and developed 2) Number of feet with grassed and forested buffer strips established 3) Number of water and sediment control basins, with treatment systems, constructed	
Objective 3.3: Reduce sediment/siltation and airborne pollutants from sand and gravel mining activities						
Priority Areas: Active mining operation in the northern portion of Subwatershed 4 along Myersville Creek on Myersville Road and an active operation in the southern half of Subwatershed 5 near S.R. 241 (Wales Avenue).						

**Table 26 (cont.)
Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan**

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
a. Ensure that implemented storm water control measures are frequently inspected	County SWCDs OEPA	NPS Program (ODNR)	6 months to 1 year	Reduced pollution from abandoned mines	Number of abandoned mines inspected for implemented storm water control measures	
b. Ensure dust control strategies are performed, such as periodic water spraying	County SWCDs OEPA	NPS Program (ODNR)	6 months to 1 year	Reduce airborne pollutants, which could eventually reach waterways	Number of active mines inspected and level of participation in dust control measures	
Goal 4: Protect and/or restore shorelines and riparian corridors in selected wetlands, lakes and streams						
Objective 4.1: Protect shoreline and riparian corridor in selected wetlands, lakes and streams						
Priority Areas: High Quality Riparian Corridors within the watershed and Biologically Significant Wetlands and other wetland areas adjacent to streams or lakes. Refer to Tables 28 and 29 for specific areas identified for protection efforts						
a. Encourage city and county park districts to purchase selected areas to protect and/or increase intact shoreline and riparian corridor	City and County Park Districts ODNR/ Div. of Wildlife and Div. of Parks and Recreation	WPCLF PL-566 CWA Section 319 NPS (OEPA) WRP	1 year	Increased shoreline and riparian corridor in selected areas	Number of selected areas purchased	
b. Provide incentives for landowners to protect shoreline or riparian corridor with long-term protection or permanent conservation easements	Local and County Planning and Zoning Boards	NatureWorks PL-566 CWA Section 319 NPS (OEPA) WRP	3 years	Increased shoreline and riparian corridor	Number of feet set aside for long-term protection or permanent conservation easements	

Table 26 (cont.)

Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
c. Assist communities with the development of township or municipal ordinances requiring new construction sites to leave easements, of a specified distance, near shorelines of targeted wetlands and lakes and flood plains of targeted streams	Local and County Planning and Zoning Boards	NPS Education Grant NPS Program (ODNR) OEEF	3 years	Protection of shoreline and riparian corridor	Townships or municipal ordinances established and enforced	
d. Identify shoreline and riparian landowners and educate them about shoreline or riparian zone protection and importance 1) Distribute information pamphlets	NEFCO	NPS Education Grant NPS Program (ODNR) OEEF WPCLF CWA Section 319 NPS (OEPA)	6 months to 1 year	Increased protection of shoreline and riparian corridor	List of riparian landowners 1) Number of information pamphlets distributed	
Objective 4.2: Restore shoreline and riparian corridor in selected wetlands, lakes and streams						
Priority Areas: Low Quality Riparian Corridors and former wetland areas which would aid in improving water quality. Refer to Tables 28 and 29 for specific areas identified for restoration efforts						
a. Assist shoreline and riparian landowners to replant shoreline and riparian corridor in selected wetlands, lakes and streams using appropriate BMPs	OEPA ODNR/DSWC County SWCDs NEFCO USDA/NRCS Grassroots/Citizen-Based Groups ODNR/Div. of Wildlife	EQIP CRP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF WPCLF (Linked Deposit) PL-566 CWA Section 319 NPS (OEPA) SIP	3 years	Restoration of shoreline and riparian corridor	Number of feet replanted	

**Table 26 (cont.)
Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan**

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
b. Assist shoreline and riparian landowners to restabilize shoreline and riparian corridor in selected wetlands, lakes and streams using appropriate BMPs	ODNR/DSWC USDA/NRCS County SWCDs NEFCO ODNR/Div. of Wildlife	EQIP CRP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF WPCLF (Linked Deposit) PL-566 CWA Section 319 NPS (OEPA) SIP	3 years	Restabilization of shoreline and riparian corridor	Number of feet restabilized	
c. Assist riparian landowners to restore in-stream habitat using appropriate BMPs	ODNR/DSWC USDA/NRCS County SWCDs NEFCO ODNR/Div. of Wildlife	EQIP CRP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF WPCLF (Linked Deposit) PL-566 CWA Section 319 NPS (OEPA) SIP	3 years	Restoration of in-stream habitat	Number of feet restored	
Goal 5: Reduce fertilizer, herbicide and pesticide runoff into the watershed						
Objective 5.1: Reduce fertilizer, herbicide and pesticide runoff from agricultural areas						
Priority Areas: To be determined						
a. Identify all agricultural areas within the watershed	ODA OSU Extension County SWCDs NEFCO USDA/NRCS	EQIP State Cost Share Program NatureWorks NPS Education Grant NPS Program (ODNR) OEEF WPCLF (Linked Deposit) CWA Section 319 NPS (OEPA)	1 year	Knowledge of number and type of current agricultural operations in the watershed	Watershed map containing different types of agricultural operations	

**Table 26 (cont.)
Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan**

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
b. Inform local farmers about the benefits and principles of integrated pesticide management (IPM) and precision farming 1) Distribute information packets 2) Hold seminars/workshops 3) Develop nutrient management plans for local farms	ODA OSU Extension County SWCDs NEFCO USDA/NRCS	EQIP State Cost Share Program NatureWorks NPS Education Grant NPS Program (ODNR) OEEF WPCLF (Linked Deposit) CWA Section 319 NPS (OEPA)	1 year	Greater awareness and involvement regarding IPM and precision farming	1) Number of packets distributed 2) Number of seminars/workshops held and level of participation 3) Level of participation in nutrient management plans	
c. Provide assistance to farms willing to participate in IPM and precision farming	ODA OSU Extension County SWCDs NEFCO	EQIP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF (Linked Deposit) R&D Grant CWA Section 319 NPS (OEPA)	1 year	Reduced contribution of fertilizer, herbicide and pesticide from agricultural areas	Assistance available and number of farms participating in IPM and precision farming	
d. Ensure farmers are implementing BMPs, e.g., chemical management and disposal and calibration and maintenance of spray equipment through education	ODA OSU Extension County SWCDs NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months to 1 year	Reduced levels of fertilizers, pesticides and herbicides from agricultural areas	Number of farmers using such BMPs on a regular basis	
e. Provide assistance to farms willing to implement appropriate BMPs to reduce agricultural runoff into lakes and streams	ODA OSU Extension County SWCDs USDA/NRCS	EQIP CRP State Cost Share Program NatureWorks NPS Program (ODNR) WPCLF (Linked Deposit) CWA Section 319 NPS (OEPA)	1 year	Reduced levels of fertilizers, pesticides and herbicides from agricultural areas	Number of farms given assistance to implement BMPs	
Objective 5.2: Reduce fertilizer, herbicide and pesticide runoff from golf courses, nurseries, greenhouses, landscaping operations, and sod-farms						
Priority Areas: Subwatersheds 2, 3, 4 and 5						

Table 26 (cont.)

Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
a. Identify how many operations are using IPM and their level of knowledge regarding IPM 1) Distribute surveys to all operations in the watershed	ODA OSU Extension County SWCDs USDA/NRCS NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months	Better understanding regarding where future education and promotion of IPM is needed	1) Number of surveys completed	
b. Inform owners/operations about the benefits of BMPs, such as: IPM, calibration and maintenance of spray equipment, and proper chemical management and disposal 1) Distribute information packets 2) Hold seminars/workshops	ODA OCES County SWCDs NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months to 1 year	Increased awareness of the benefits of BMPs	1) Number of pamphlets distributed 2) Number of seminars/workshops held and level of participation	
Objective 5.3: Reduce fertilizer, herbicide and pesticide runoff from lawns						
Priority Area: Subwatershed 3						
a. Educate property/home owners about the importance of lawn fertilizer and herbicide management 1) Distribute information pamphlets 2) Hold backyard stream stewardship programs which introduce alternative lawn and garden care	1) OEPA/DSW County SWCDs NEFCO 2) OEPA/DSW County SWCDs OSU Extension ODNR/Div. of Wildlife NEFCO	NatureWorks NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA) Private Sector	6 months to 1 year	Increased awareness concerning the importance of lawn fertilizer and herbicide management	1) Number of information pamphlets distributed 2) Number of backyard stream stewardship programs held and list of participants	
Goal 6: Reduce levels of salinity impacting surface and/or ground water quality, which will decrease levels of dissolved solids						
Objective 6.1: Decrease runoff from salt storage sites and seasonal spreading of salt						
Priority Area: Entire watershed						

Table 26 (cont.)

Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
a. Ensure that proper application, covered storage, cleanup of spills, and cleaning of sewers and ditches is implemented when using deicing materials	County SWCDS Local Government NEFCO Private Sector	NPS Education Grant NPS Program (ODNR) OEEF WPCLF CWA Section 319 NPS (OEPA)	3 years	Lower levels of water contamination from de-icing salts	Number of individuals or facilities contacted and level of management regarding de-icing materials	
b. Introduce BMPs to absorb runoff from impervious areas such as porous pavement and installing grass swales rather than storm sewers	County SWCDS County Engineer USDA/NRCS NEFCO	CRP NatureWorks NPS Program (ODNR) WPCLF CWA Section 319 NPS (OEPA)	3 years	Decrease runoff, which may contain dissolved solids, from impervious surfaces	Number of BMPs introduced and installed	
c. Explore the use of environmentally-friendly de-icing materials	County Engineer Private Sector	NatureWorks NPS Program (ODNR) WPCLF R&D Grant CWA Section 319 NPS (OEPA) Private Sector	3 years	Feasible alternatives to current de-icing materials	Results of alternative de-icing material research	
Objective 6.2: Decrease releases of brine from oil exploration and drilling activity						
Priority Area: Subwatershed 3						
a. Distribute flyers informing watershed residents on how to identify suspicious activities related to illegal dumping of brine and phone numbers of proper authorities to contact	OEPA/DERR NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	6 months to 1 year	Decreased illegal dumping of brine	Number of flyers distributed	
Goal 7: Acquire stronger understanding, cooperation and participation regarding water quality issues						
Objective 7.1: Strengthen awareness of and involvement in watershed issues						
Priority Area: Entire watershed						

**Table 26 (cont.)
Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan**

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
a. Create stronger partnerships between all stakeholders in the watershed, including government agencies, private businesses and property owners	NEFCO	NatureWorks PL-566 CWA Section 319 NPS (OEPA)	3 years	Greater cooperation and participation to protect/improve water quality	Level of interest and feedback at events pertaining to the watershed	
b. Educate residents about watershed issues, through regularly scheduled events/activities that are recognized by the public 1) Distribute surveys 2) Present information at local organizations, e.g., Kiwanis, Audubon Society, and Nature Conservancy 3) Set up information booths at County/Local Fairs 4) Distribute information pamphlets 5) Organize field days 6) Hold public meetings	County SWCDs NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	1 year	Greater awareness regarding watershed issues	1) Number of surveys distributed and returned 2) Number of presentations given 3) Number of fairs with information booths 4) Number of information pamphlets distributed 5) Number of field days held 6) Number of public meetings held	
c. Organize volunteer action groups to address water quality concerns	County SWCDs NEFCO	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA) Citizen Action Mini-Grant	6 months to 1 year	Increased local involvement to improve water quality	Number of volunteers action groups formed	
d. Implement a watershed protection and awareness program in local schools	OEPA/DSW County SWCDs Local Boards of Education Local Schools Career Centers	NPS Education Grant NPS Program (ODNR) OEEF CWA Section 319 NPS (OEPA)	1 year	Stronger knowledge of future generations regarding the importance of watershed protection	Number of local schools implementing program	

Table 26 (cont.)

Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
Objective 7.2: Monitor and evaluate water quality of lakes and streams						
Priority Area: Entire watershed						
a. Continue the NEFCO Volunteer Lake Monitoring Program (VLMP)	NEFCO	NPS Education Grant CWA Section 319 NPS (OEPA) Citizen Action Mini-Grant	3 years	Increased database to draw more accurate conclusions regarding water quality of lakes in the watershed	Data collected and results	
b. Monitor and establish baseline levels for macroinvertebrates, bacteria and water chemistry through volunteer monitoring programs 1) Identify representative monitoring locations 2) Organize volunteer monitoring programs 3) Summarize monitoring results into written reports	ODNR/DSWC County SWCDs OEPA/DSW NEFCO Izzak Walton League Rivers Unlimited	CWA Section 319 NPS (OEPA) Citizen Action Mini-Grant	3 years	Greater involvement and knowledge regarding water quality of streams and lakes, and additional data to monitor future results of remedial efforts	1) Number of critical monitoring locations identified 2) Number of volunteers and programs established 3) Written reports with results	
Objective 7.3: Conduct further research regarding point and nonpoint source pollution						
Priority Area: Entire watershed						
a. Locate historical spills and accidental release sites in the watershed	OEPA/DERR NEFCO	R&D Grant CWA Section 319 NPS (OEPA) Citizen Action Mini-Grant	3 months	Insight regarding locations where there is a higher risk of pollutants from spills and accidental releases	List and map of spills and accidental release sites in the watershed	
b. Produce a map with soil limitations for HSDSs and SPDSs	County SWCDs NEFCO Local Health Departments	NatureWorks CWA Section 319 NPS (OEPA)	3 months	Greater knowledge of where there is a high potential for HSDSs and SPDSs failure	Map of soil limitations for HSDSs and SPDSs	

**Table 26 (cont.)
Goals, Objectives, Priority Areas and Actions in Addition to Suggested Responsible Parties, Possible Funding Sources, Estimated Time Frames, Expected Improvements, and Evaluations of the Upper Tuscarawas Watershed Action Plan**

Action	*Suggested Coordinating Party(ies)	**Possible Funding Source(s)	***Est. Time Frame	Expected Improvement(s)	Evaluation	Cost Estimate ***
c. Generate a map with present soil survey information available, e.g., slopes and potential soil loss	County SWCDs NEFCO	NatureWorks CWA Section 319 NPS (OEPA)	3 months	Insight regarding areas with increased pollutant runoff and erosion	Map with slopes and potential soil loss	
d. Identify types and locations of agricultural operations in the watershed	ODA OSU Extension NEFCO	NatureWorks CWA Section 319 NPS (OEPA)	3 months	Insight regarding potential pollution sources in the watershed	List of agricultural operation in watershed	
e. Produce a map with the locations of registered underground storage tanks (RUSTs)	OEPA/DERR NEFCO	NatureWorks CWA Section 319 NPS (OEPA)	1 month	Insight regarding potential pollution sources in the watershed	Map with the locations of RUSTs in the watershed	
f. Identify and map future extensions of central water facilities	NEFCO County Sanitary Engineer Environmental Services Department	NatureWorks CWA Section 319 NPS (OEPA)	1 month	Insight regarding where ground water contamination is more likely to occur	Map with future extensions for central water facilities	
g. Plot locations of abandoned water wells	OEPA/DDAGW NEFCO	NatureWorks CWA Section 319 NPS (OEPA)	3 month	Insight regarding where ground water contamination is more likely to occur	Map with abandoned water wells in the watershed	
<p>*Possible Lead Parties **Refer to Appendix R for a complete list of funding sources in Ohio. ***Estimated time frame refers to amount of time required once funding is obtained.</p>						