ATTACHMENT B

The Eight Tools Audit

The Eight Tools Audit is designed to identify regulatory and programmatic tools and gaps in your watershed protection arsenal. The self-assessment is organized by the eight categories of protection tools available in most communities. These tools roughly correspond to the stages of the development cycle from initial land use planning, site design, and construction through home ownership. As a result, a watershed manager will generally need to apply some form of all eight tools in every watershed to provide comprehensive watershed protection. The eight tools include:

- *Land Use Planning*—identify which regulatory measures and/or planning techniques are in use in your community to manage growth, redirect development where appropriate, and protect sensitive areas (i.e., zoning, overlay districts, growth boundaries).

- *Land Conservation*—outline programs or efforts to conserve undeveloped, sensitive areas or areas of particular historical or cultural value (i.e., PDR, land trusts, agricultural preservation, tax incentives).

- *Aquatic Buffers*—evaluate criteria for the protection, restoration, creation, or reforestation of stream, wetland, and urban lake buffers (i.e, width, vegetative standards, incentives).

- *Better Site Design*—assess flexibility of local codes and ordinances to reduce impervious cover, integrate stormwater management, and conserve natural areas in the design of new and redevelopment projects.

- *Erosion and Sediment Control*—examine criteria for the use of erosion prevention, sediment control, and dewatering practices at all new development and redevelopment sites.

- *Stormwater Management*—assess criteria for design of structural practices in new development, redevelopment, or the existing landscape to help mitigate the impacts of stormwater runoff on receiving waters.

- *Non-stormwater discharges*—evaluate operations and maintenance programs for locating, quantifying, and controlling non-stormwater pollutant sources in the watershed.

- *Watershed Stewardship Program*—identify extent of existing stormwater and watershed education or outreach programs; restoration efforts, and monitoring activities.

➲ Please complete the following self-assessment for your watershed, preferably a watershed of 100 sq miles or less in size. If you represent a watershed with multiple jurisdictions, then choose

one (maybe the one with the most area in the watershed) to base your answers on.

Note that questions with the  symbol were inserted into the NCA as part of an EPA-funded project to integrate wetlands and watershed planning.

Background

Your Name: _____

Jurisdiction: _____

Department/Group: _____

Address: _____

_____

Phone: _____ Fax: _____

Email: _____

1.	What is the form of government in your community?	☐ City ☐ County ☐ Township ☐ Other
3.	What is the approximate area of your community?	Square miles
4.	What is the approximate population of your community?	
5.	What is the approximate percentage of each of the following land uses in your community?	☐ Ultra-Urban:_____% ☐ Urban:_____% ☐ Suburban:_____% ☐ Rural:_____% ☐ Undeveloped:_____%
6.	Is your community growing?	☐ Quickly and facing a lot of development pressure ☐ Slowly, facing moderate development pressure ☐ Not at all, this isn't really a concern

7.	The best description of my community's stormwater drainage system is:	☐ Storm drains (usually pipes leading to a receiving stream) ☐ Open channels or ditches ☐ Combination of storm drains and open channels ☐ Combined sewers (stormwater and wastewater flow in the same pipe) ☐ Don't know
8.	What is the primary method your community uses to treat wastewater (check all that apply)?	☐ Wastewater treatment plants ☐ Individual septic systems ☐ Community septic systems ☐ Straight pipes ☐ Other
9.	Do you know the department that is primarily responsible for mapping and GIS?	☐ Yes ☐ No ☐ Don't know
10.	What are the primary concerns driving local watershed protection in your community *(check all that apply and describe the most import)?*	☐ Maintain stream quality ☐ Sustain fishery (trout, salmon, warm-water) ☐ Protect lake quality (eutrophication) ☐ Protect quality of drinking water sources ☐ Protect coastal waters ☐ Protect groundwater and maintain recharge ☐ Conserve wetlands and/or forests ☐ Maintain rural character (i.e. farm conservation) ☐ (other) ☐ (other)
11.	What is your community's prior local experience in watershed planning in the last five years?	☐ Watershed plans completed ☐ Some internal planning and studies ☐ None
12.	What is the regulatory status of your watershed?	☐ Not meeting water quality standards, subject to TMDL ☐ Designated as special waters, under antidegradation ☐ Don't know
13.	What is the approximate percentage of each of the following resources in your community?	☐ Forest:_____% ☐ Wetlands and Open Water:_____% ☐ Impervious Cover:_____% ☐ Turf:_____% ☐ Other:_____%
14.	Does your community have watershed-based GIS data layers?	☐ Watershed GIS system is operational ☐ Community has GIS, but it is not watershed-based ☐ Only have paper maps

15. What is your community's political receptivity to watershed planning?	☐ Elected officials support or even champion watershed plans ☐ Agency staff are supportive ☐ Have not heard of watershed planning ☐ Unsure and wary of watershed planning ☐ Hostile toward idea of watershed planning
17. What is your community's awareness about watersheds?	☐ High degree of concern about watershed issues ☐ Mixed level of concern, some awareness ☐ Low level of concern and awareness
18. What are some of your community's other issues relating to watersheds?	☐ Growth vs. no growth ☐ Farmland conservation ☐ Protection of rural character ☐ Desire for greenways, parks, or recreation ☐ Newcomers vs. old timers
19. What are the key pollutants of concern in your watershed?	☐ Nutrients ☐ Heavy metals ☐ Sediment ☐ Bacteria ☐ Others: ☐ Don't know
20. What are the key habitat impairments in your watershed?	☐ Stream degradation ☐ Wetland disturbance ☐ Fish barriers ☐ Rare and endangered species ☐ Riparian condition ☐ Others: ☐ Don't know

Tool #1. Land Use Planning

What land use planning techniques does your community employ that can be used to maintain or limit future impervious cover, redirect development where appropriate, and protect sensitive areas? Watershed recommendations that build upon existing planning techniques (i.e. overlay districts, PDR, zoning) are often easier to implement than untested tools.

Who is the local agency in charge of land use planning?
List agency(ies) and contact information:

1.1	Does your community have a comprehensive plan?	☐Yes ☐No ☐Don't know
	If so when was it last revised?	☐Don't know
	How often do you typically update your comprehensive plan? *Comprehensive plans reflect the vision your community has for itself that will guide development decisions over the next 10-20 years. If your plan is scheduled to be updated, this will be the opportune time to make sure watershed management goals are incorporated.*	☐ Every 5 years ☐ Every 10 years ☐ We don't ☐ Other: ☐Don't know
1.2	Does your comprehensive plan address the most important watershed or water resource goals for your community? If so, which goals and how? *Flood control, water quality, groundwater protection, and instream habitat are common water resource goals that should be incorporated into the comprehensive planning process. Check your plan to see if these goals are clearly outlined. Your watershed plan should specifically target goals of the comprehensive plan.*	☐Yes ☐No ☐Don't know

Does your plan evaluate and take into account impacts of future land use on water resources? ☐Yes ☐No ☐Don't know

In what way?

Check to see if long-term transportation and development planning jives with water resource goals. If not, then you may have identified a serious gap in your comprehensive planning process and may have to apply additional protection tools in those areas.

1.3 Does your community have zoning authority? ☐Yes ☐No ☐Don't know

If yes, please list the different zoning districts that are included in your zoning (include abbreviation):

Zoning is the local authority to regulate the type and density of future land use. If your jurisdiction has land use authority, then there are many opportunities to provide incentives and establish development criteria to protect water resources.

In addition, zoning information helps you predict future buildout conditions and impervious cover estimates for your watershed.

1.4 Do you have access to zoning maps for the other jurisdictions in your watershed? ☐Yes ☐No ☐Don't know

Inevitably, when multiple jurisdictions exist within a watershed, some have digital zoning information and others do not. It's hard to estimate future impervious cover without all the zoning information for the watershed.

1.5 Have you used land use, zoning, and other techniques to estimate current and future impervious cover in your (sub)watersheds?

☐Yes ☐No ☐Don't know
☐Not applicable

Percent impervious cover is a quick and easy indicator of water resource conditions (CWP 1998, 2003). A lot of communities have estimated current impervious cover, but few have estimate future imperviousness!

1.6. Does your community employ any of the following planning tools to direct growth, manage impervious cover, and protect natural resources *(check those that apply)*?

Other techniques?

☐Overlay districts[1]
☐Watershed-based zoning[2]
☐Purchase or Transfer of development rights[3]
☐Limiting infrastructure extension[4]
☐Infill / community redevelopment[5]
☐Agricultural zoning/ preservation
☐Compensatory mitigation
☐None of the above
☐Don't know

If so, great! Let's figure out how to maximize water resource protection using them.

1.7 Are there local regulations governing the protection of wetlands during development?

If so, describe the key elements:

☐Yes, we refer to state/ federal regs
☐Yes, we have our own ordinance
☐No
☐Don't know

➲*If so, please attach copy of regulation:*

If so, is compensatory mitigation allowed for impacts to wetlands? ☐Yes ☐No ☐Don't know

Is there a local wetland permitting procedure? ☐Yes ☐No ☐Don't know

Do the regulations distinguish between wetlands with different functional values or quality? ☐Yes ☐No ☐Don't know

[1] *A local zoning jurisdiction that is overlaid on a property's existing zoning. Superimposes additional regulations or specific development criteria within specific areas.*
[2] *An alternative zoning technique, whereby the intensity of development within a watershed or subwatershed is at least partially based on the ultimate percentage of impervious cover and the desired level of stream protection.*
[3] *Transfers potential development from a designated "sending area" to a designated "receiving area"*
[4] *A conscious decision is made to limit or deny extending infrastructure, such as public sewer, water, or roads, to designated areas to avoid increased development in these areas*
[5] *Encourages new development and redevelopment within existing developed areas*

	Which of the following wetland types/activities are regulated in your community?	☐ Small wetlands that do not appear on NWI maps (e.g., less than 3 acres) ☐ Headwater, ephemeral, and isolated wetlands ☐ Draining or ditching a wetland ☐ Clearing a wetland ☐ Development and land use activities within wetland drainage areas (e.g., storm water inputs, site design)
	Do you require functional assessment of wetlands in addition to delineation in non-mitigation permitting? Which functional assessment protocol do you use?	☐Yes ☐No ☐Don't know
	Is local enforcement of wetland protection adequate? If not, why not?	☐Yes ☐No ☐Don't know
1.8	Are floodplains mapped and managed based on FEMA requirements?	☐Yes ☐No ☐Don't know ☐Not applicable
	Are there additional local development restrictions within floodplains? Describe: ➲*If so, please attach copy of requirements:*	☐Yes ☐No ☐Don't know ☐Not applicable
1.9	Does your community have a detailed local wetland inventory that is more accurate than NWI and has been updated within the past 3 years?	☐Yes ☐No ☐Don't know
	If so, does the inventory contain information about wetland function?	☐Yes ☐No ☐Don't know

1.10 Are there development restrictions pertaining to stream channel modification?

☐Yes ☐No ☐Don't know ☐Not applicable

If yes, describe key components of restrictions

➲*If so, please attach copy of requirements:*

1.11 Does your community have a reservoir protection ordinance or other special water quality area protection ordinance?

☐Yes ☐No ☐Don't know ☐ We have no special areas

If yes, describe:

➲*If so, please attach copy of ordinance:*

1.12 Are there development restrictions pertaining to steep slopes?

☐Yes ☐No ☐Don't know ☐Not applicable

If yes, describe key components of restrictions *(what constitutes a steep slope?):*

➲*If so, please attach copy of requirements:*

1.13 Does your community have a recharge or groundwater protection ordinance?

☐Yes ☐No ☐Don't know ☐Not applicable

If so, describe key elements:

➲*If so, please attach copy of requirements:*

➲:Summarize existing regulatory or programmatic **land use planning tools** currently available to apply towards watershed protection:

Summarize gaps in land use planning tool box:

Notes:

Tool #2. Land Conservation

Take a look at what programs or efforts exist within (or nearby) your community to conserve undeveloped, sensitive areas or areas of particular historical or cultural value.

Who is the local agency involved in conserving land?
List agency(ies) and contact information:

2.1	Do you know the locations of rare, threatened, or endangered species are in your watershed?	☐Yes	☐No	☐Don't know
2.2	Have critical habitat areas for plant and animal species been mapped in your community?	☐Yes	☐No	☐Don't know
2.3	Have groundwater recharge areas and wetland contributing drainage areas been mapped in your watershed? *These areas are critical for maintaining hydrologic watershed functions and should not be overlooked by conservationists.*	☐Yes	☐No	☐Don't know
2.4	Do locations of RTE species and sensitive areas trigger additional review by local planners prior to site plan approval? *In some cases, the location of sensitive habitats that may be impacted by a particular development may not be known by plan review staff, thereby limiting the level of protection that could potentially be afforded these areas.*	☐Yes	☐No	☐Don't know
2.5	Other than what is required by state and federal laws, is the preservation of critical habitat areas for plant and animal species: If applicable, describe key components of the program (*i.e. regulations, incentives, enforcement):* ➲*If so, please attach copy of requirements:*	☐Required ☐Encouraged ☐Neither ☐Don't know ☐Other:		

2.6 Are there any local requirements for forest conservation?

☐Yes ☐No ☐Don't know

If so, what are they?

➲*If so, please attach copy of ordinance(s).*

2.7 Is the preservation of active agricultural areas:

☐ Required
☐ Encouraged
☐ Too late
☐ None of the above
☐ Don't know

If required or encouraged, describe the key components of your program:

➲*If so, please attach copy of ordinance(s). Often, ag preservation can be a leading driver for growth management. Consider prioritizing preservation areas with water recharge, buffer protection, and wildlife corridors goals.*

2.8 Other than what is required by state and federal laws, is the preservation of cultural or historical areas:

☐Required
☐Encouraged
☐Neither
☐Other:

☐Don't know

If required or encouraged, describe the key components of your program:

➲*If so, please attach copy of ordinance(s)These sites are often adjacent to or within natural resource protection areas.*

2.9 Is the preservation of forests, fields, and wetlands for hunting, fishing, hiking, or other active recreation:

☐Required
☐Encouraged
☐Neither
☐Other:

☐Don't know

2.10 Does your community permit or encourage any of the following techniques to conserve land?

☐ Conservation easements
☐ Land acquisition programs
☐ Purchase of development rights (PDRs)
☐ Landowner stewardship programs
☐ Other

☐ None of the above

2.11 Can the local government administer conservation easements? ☐Yes ☐No ☐Don't know

If so, please describe key components of the program:

Are maintenance, ownership responsibilities, and enforcement part of the program? ☐Yes ☐No ☐Don't know

2.12 Do any local or regional private land trusts that accept conservation easements exist in the watershed or larger basin? ☐Yes ☐No ☐Don't know

If so, who?:
List group and contact information:

2.13 Have you identified conservation opportunities in the watershed *(i.e. wetlands, forests, recharge areas, etc)*? ☐Yes ☐No ☐Don't know

➲*Can you get a map of these locations?.*

2.14 Have you determined which potential conservation areas are most vulnerable to development impacts? ☐Yes ☐No ☐Don't know

2.15 Have you established a process for prioritizing conservation opportunities? ☐Yes ☐No ☐Don't know

If so, describe your ranking factors *(i.e, connectivity; contiguousness; RTE species; :willing land owner):*

➲*You should check program ranking criteria to make sure they include factors that meet watershed protection goals and objectives.*

2.16	Is there state or local funding source available for purchasing easements or acquiring land?	☐Yes	☐No	☐Don't know
2.17	What is the required ratio for conservation of wetlands as part of wetland compensatory mitigation program? *Depending on your local guidelines, you may be able to use mitigation requirements to acquire priority wetlands for conservation.*	☐Not applicable		☐Don't know

➲:Summarize existing regulatory or programmatic **land conservation tools** currently available to apply towards watershed protection:

Summarize gaps in land conservation tool box:

Notes:

Tool #3. Aquatic Buffers

Evaluate your community's ability to protect and restore vegetated riparian, wetland, and shoreline buffers.

Who is the local agency in charge of enforcing buffer requirements?
List agency(ies) and contact information:

3.1 Are stream, wetland, or shoreline buffers required in your community? *(check all that apply)*

- ☐ Yes, on perennial streams
- ☐ Yes, on intermittent streams
- ☐ Yes, on ephemeral streams
- ☐ Yes, on most wetlands
- ☐ Yes, on all wetlands
- ☐ Yes, on shorelines (lakes)
- ☐ Yes, other:
- ☐ No
- ☐ Don't know

If so, is there a local buffer ordinance?

➲*If so, please attach a copy of your regulations, supporting guidance, enforcement, maintenance information, etc.*

- ☐ Yes, we refer to the state regs
- ☐ Yes, we have developed our own ordinance
- ☐ No
- ☐ Don't know

If so, when was it last updated? ☐Don't know

If your buffer ordinance has not been updated within the last 5 years, you should evaluate how successful it has been, and how it can be improved (i.e. remove ambiguity, include plant lists, better protection for sensitive streams)

3.1 Are buffers part of an overlay district? ☐Yes ☐No ☐Don't know

3.2 If required, what is the minimum required buffer width *(in feet)*? ☐Don't know

➲*In general, a minimum base width of at least 100 feet is recommended to provide adequate stream habitat and water quality protection. Much larger widths are recommended for wildlife protection and view corridors. See if you can track down the rationale behind your established widths.*

	Are width criteria higher for high quality streams, wetlands, reservoirs, or other sensitive aquatic resources?	☐Yes ☐No ☐Don't know
	Widths are commonly measured from *(check all those that apply):*	☐ Centerline of stream ☐ Stream bank ☐ Edge of 100-year floodplain ☐ Delineated edge of wetland ☐ Top of adjacent steep slope ☐ High tide/water line ☐ Other: ☐ Don't know
	Can widths be expanded to connect wetlands with their critical upland habitats?	☐Yes ☐No ☐Don't know
	Does your community provide flexibility with a variable width buffer system (buffer averaging)? *This can be difficult to administer, however, flexible systems can provide additional protection to highly sensitive areas in exchange for minimal buffer application in "high traffic" portions of a site.*	☐Yes ☐No ☐Don't know
3.4	Are buffers excluded from private property boundaries in new residential subdivisions or commercial development? *If buffers are outside of property lines, then there is often less hassle with enforcement (i.e. homeowners requesting permission to build sheds, cut trees).*	☐Yes ☐No ☐Don't know
3.5	Are methods for determining where buffers are applied/delineated detailed in your buffer ordinance? *Is it a stream or is it a ditch? Your ordinance should alleviate the*	☐Yes ☐No ☐Don't know
3.6	Does your community rely primarily on mapping data (USGS "blue line" streams or NWI) for applying buffer regulations (or are field verifications also used)?	☐Yes ☐No ☐Don't know
3.7	Are buffer delineations visibly demarcated on: *Boundaries should be well defined during each stage of the development process from initial plan review to post-construction. This can prevent encroachment during construction and by homeowners.*	☐ Pre-construction plan (site plans) ☐ Construction plans ☐ As built/final plans ☐ Homeowners plat ☐ Other: ☐ None of the above: ☐ Don't know
3.8	Is a physical demarcation (flagging or fencing) of buffers required on site during construction to prevent encroachment?	☐Yes ☐No ☐Don't know

	If so, can site inspectors enforce buffer criteria with stop work orders or fines?	☐Yes	☐No	☐Don't know
3.9	Are excluded uses/activities within the buffer clearly established in your buffer ordinance *(impervious cover, underground storage tanks, structures, etc)?*	☐Yes	☐No	☐Don't know

➲*If so, please attach a copy of excluded uses.*

What uses/activities are exempt from buffer criteria?	☐ Utilities ☐ Road crossings ☐ Agriculture/Livestock ☐ Logging ☐ Nature trails ☐ Other: ☐ None of the above ☐ Don't know	
Are septic drain fields allowed within the buffer?	☐Yes	☐No ☐Don't know
If not, what is the setback requirement?		☐Don't know
3.10 Are there specific vegetative targets outlined in ordinance (i.e. native plants)?	☐Yes	☐No ☐Don't know

If so, please describe:

➲*Buffers should have an ultimate vegetative target for a predevelopment native riparian plant community. Do you have a native plants list, if not, consider tracking one down from your local or state natural resources department. You'll want to reference this list in your ordinance for long-term management and restoration projects.*

3.11	Are selective clearing and other management procedures outlined in the buffer ordinance *(3-zoned buffer, mowing restrictions, tree pruning guidance, etc)?*	☐Yes	☐No	☐Don't know

If so, please describe:

Urban stream buffers can be designed with a three- zone buffer where each zone performs a different function, and has a different width, vegetative target and management scheme.

3.12 Do third parties or homeowners associations have the ability to manage buffers in your community? ☐Yes ☐No ☐Don't know

If not, consider giving them the authority to manage invasive plants, pick up trash, and report encroachment.

3.13 Are any of the following criteria established in buffer ordinance to limit the impacts of stream buffer crossing?

- ☐ Crossing and clearing width must be minimized
- ☐ Crossing angle is perpendicular to stream
- ☐ Frequency of crossings is minimized
- ☐ Creation of fish barriers is prohibited
- ☐ All features designed to handle 100-year floods
- ☐ Hydrologic alteration must be minimized (e.g., no constrictions at wetland outlets)
- ☐ Other
- ☐ None of the Above

Ideally a stream buffer network should be maintained as an unbroken corridor, however this is not always possible. When crossings are necessary, such as roads, bridges, utilities, etc construction methods should be used that will minimize the impact.

3.14 Can storm water management facilities be located in the buffer? ☐Yes ☐No ☐Don't know

3.15 Can buffers be used for sheet flow storm water management? ☐Yes ☐No ☐Don't know

3.16 Are any of the following stream buffer management measures required in your community? *(check those that apply)*

- ☐ Permanent signage marking the buffer boundary
- ☐ Periodic buffer walks to check for encroachment
- ☐ Non-compliance enforcement measures
- ☐ Landowner education on benefits/responsibilities
- ☐Other:
- ☐None of the above
- ☐Don't know

Future integrity of the buffer system requires a long-term management strategy, including a strong education and enforcement program.

3.17 Do you have a GIS mapping layer that identifies good and inadequate buffer areas in your watershed? ☐Yes ☐No ☐Don't know

3.18 Is there a funding mechanism or program for buffer reforestation/restoration for both rural and urban areas?

- ☐Yes
- ☐ Rural only
- ☐ Urban only
- ☐ No
- ☐Don't know

3.19 Is there a comprehensive invasive plant control strategy for local buffers? ☐Yes ☐No ☐Don't know

If so, who manages the program?

3.20 Does your community provide any of the following voluntary and regulatory incentives to encourage buffer protection above and beyond what is required?

If so, please describe:

☐ Buffer averaging
☐ Conservation easements
☐ Property tax reduction
☐ Subsidies
☐ Stormwater credits
☐ Cost-share programs
☐ Other:

☐ None of the above
☐ Don't know

➲: Summarize existing regulatory or programmatic **buffer tools** currently available to apply towards watershed protection:

Summarize gaps in buffer tool box:

Notes:

Tool #4. Better Site Design (BSD)

Residential and commercial site design that reduces impervious cover, protects existing natural areas, and treats stormwater on site. Review development codes and ordinances that encourage or hinder this type of environmentally-sensitive design.

Who is the local agency in charge of updating development regulations and reviewing site plans?
List agency(ies) and contact information:

4.1	Are there zoning or subdivision codes that outline criteria for new residential and commercial development? ➲*If so, please compile relevant sections from your zoning ordinance, road codes, forest conservation, or other regulations guiding site design for new development.*	☐Yes ☐No ☐Don't know
4.2	If so, when were they last revised? ➲*If development codes have not been revised in the last five years, consider doing a quick self-assessment to see if your codes impede environmentally sensitive development (many antiquated codes never considered protecting water resources when they were originally crafted)! We recommend completing the* ***Codes and Ordinances Worksheet*** *(COW) to quickly assess your community's ability to implement BSD.*	☐Don't know
4.3	Are open space *(conservation design, cluster, low impact, etc*) developments a common form of development in your community? ➲*If not, then again, we encourage you to take the COW to identify gaps and barriers in your codes to encourage/allow this type of development.*	☐Yes ☐No ☐Don't know

➲The Codes and Ordinances Worksheet (COW) is a 66-question, 100-point self-assessment used to systematically evaluate your community's development codes based on Better Site Design benchmarks. The COW is organized into 3 parts: codes related to streets and parking lots; requirements for lot geometry; and standards for natural area protection. We recommend using the COW to identify barriers to implementing BSD in your community. An electronic version of the COW can be found at www.cwp.org or www.buildersforthebay.net

4.4	Do developers have to go through additional review, obtain variances, or sell their fist born son in order to get an open space design approved? *If so, consider making this kind of development by-right in order to encourage BSD application.*	☐Yes	☐No	☐Don't know
4.5	Is there an overlay district or a "red-flag" system that triggers additional level of plan review in sensitive areas?	☐Yes	☐No	☐Don't know
4.6	Do local regulations require open space or conservation design near sensitive streams and wetlands; drinking water reservoirs; recharge areas; special habitats, or other natural resources? If so, please describe: *If you a site adjacent to a sensitive area is going to be developed, then develop it in a way that will minimize the environmental impact.*	☐Yes	☐No	☐Don't know
4.7	Does your community have authority over local road design *Some communities do not have authority over how roads are designed in new developments; often the authority rests with state DOT.*	☐Yes	☐No	☐Don't know
	If so, do your local street standards allow for narrower roads and open channel drainage? *The COW establishes benchmarks for road, ROWs, and cul-de-sac design based on community averages from around the country.*	☐Yes	☐No	☐Don't know
4.8	Do local parking lots commonly exceed minimum parking ratios and generate excess, unused impervious surface? *The COW establishes benchmarks for establishing parking ratios, stall dimensions, and parking design flexibility based on what other communities are doing around the country.*	☐Yes	☐No	☐Don't know
4.9	Are homeowner agreements in place to maintain low impact development practices such as rain gardens? *As we move towards low impact development practices, it is important to account for the long-term management and maintenance of many backyard stormwater practices.*	☐Yes	☐No	☐Don't know
4.10	Are open space protection and management criteria specified for new subdivisions and parking lots? *Effective open space protection requires explicit criteria such as percentage of site, contiguousness, long-term management; stormwater integration; and canopy coverage targets.*	☐Yes	☐No	☐Don't know
4.11	Are there guidelines for on-site afforestation or reforestation? *Look for opportunities to not only protect existing tress, but to plant new trees during the development process, particularly in watersheds where agricultural fields are being converted to residential neighborhoods.*	☐Yes	☐No	☐Don't know

Tool #5. Erosion and Sediment Control (ESC)

Take a look at local practices and procedures to prevent erosion and control sediment on construction sites. The clearing of vegetation and the exposure of sediment during the construction process can be one of the most critical periods of the development cycle. ESC often fails due to improper practice installation and maintenance by contractors, and lack of inspection and enforcement by local authorities.

5.1 Who is the local agency in charge of revising and enforcing ESC regulations?
List agency and contact information:

5.2 Is there a local erosion and sediment control ordinance?

➲*If erosion and sediment control is required, please attach a copy of your regulations.*

☐ Yes, we refer to the state regs
☐ Yes, we have developed our own ordinance
☐ No
☐ Don't know

If so, when was it last revised?

If more than 5 years, consider revising.

5.3 What is the minimum disturbance area requirement for erosion and sediment control plans?

Phase II requirements cover disturbances greater than 1 acre, however some communities are requiring ESC for less than 1 acre in highly sensitive watersheds (i.e. drinking water).

☐ All disturbances
☐ greater than 1 acre
☐ greater than 2 acres
☐ greater than 5 acres
☐ within a special resource area
☐ Other:
☐ Don't know

5.4 Are ESC plans reviewed during the site plan review process? ☐Yes ☐No ☐Don't know

Check to make sure ESC plans are being reviewed in the context of the overall site development process. The process should be set up to trigger red flags in sensitive areas that may require more inspections or advanced ESC.

5.5 Are ESC criteria more stringent in areas draining to sensitive areas such as wetlands, trout streams, reservoirs, or other resource protection area? ☐Yes ☐No ☐Don't know

If yes, how so?

This is a good link with land use planning tools…if you have overlay districts established for sensitive areas, you may be able to apply more stringent ESC criteria for development within them.

5.6 Are there clearing and grading requirements or incentives to encourage phased clearing and site fingerprinting? ☐Yes ☐No ☐Don't know

If so, describe:

If not, consider instituting! Research shows that lots with mature trees are worth more to homebuyers than non-treed lots. Research also indicates that pervious areas compacted by bulldozers and grading equipment acts a lot like impervious cover.

5.7 Are there specific ESC requirements for logging operations? ☐Yes ☐No ☐Don't know ☐not applicable

➲*If so, attach copy of guidance manual and/or regulations.*

5.8 Is there guidance available for ESC on hillside roads? ☐Yes ☐No ☐Don't know ☐not applicable

➲*If so, attach copy of guidance manual and/or regulations.*

5.9 Are inspection frequency and enforcement requirements specified in the ESC ordinance? ☐Yes ☐No ☐Don't know

If not, this should be spelled out to avoid confusion and provide predictability.

If so, what is the required inspection frequency for construction sites?

If after rainfall event, describe storm event (0.5 in, 1 in):

☐ Once every 7 days
☐ Once every 7 days or after rainfall event
☐ Once every 14 days and after rainfall event
☐ Other:

☐ Don't know

If so, please describe the enforcement measures:

5.10 How often does the average construction site actually get inspected?

☐ Only when there is a complaint
☐ Less than required
☐ Per regulations
☐ More often than required
☐ Don't know

5.11 Who conducts inspections of construction sites for compliance with erosion and sediment control requirements?

☐ Not Applicable
☐ County / municipal inspector
☐ Third-party inspector (e.g. private engineer)
☐ Other:

5.12 If government responsibility, how many FTE are dedicated to ESC inspection and enforcement?

No one ever has enough staff! If your watershed is expected to develop at a rapid pace, you may need to increase inspection capacity.

- ☐ <0.5
- ☐ 0.5-1
- ☐ 1.5-3
- ☐ >3
- ☐ Don't Know

5.13 Describe background/training level for ESC inspectors (state certification, 1 day course, etc):

5.14 Does your community sponsor erosion and sediment control training for:

If not, you should consider providing a course not just for inspectors, but also for the folks designing, installing, and maintaining the practices...

- ☐ Developers
- ☐ Contractors
- ☐ Engineers
- ☐ Inspectors
- ☐ None of the above
- ☐ Not Applicable

5.15 Do training programs cover local buffer, wetland, steep slope, open space, and tree protection regulations? ☐ Yes ☐ No ☐ Don't know

Trainers should take this opportunity to remind contractors and inspectors of the water resources ESC is meant to protect. Make sure trainers understand how ESC practices relate to other protection tools.

5.16 Are ESC enforcement mechanisms (e.g. fines, stop work orders, etc.) generally considered effective deterrents?

Be honest here, if you think enhanced enforcement is needed in your community...

- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Not applicable

5.17 Do monies collected from fines go back into ESC program? ☐ Yes ☐ No ☐ Don't know

➲*See if you can find out how many enforcement actions were taken last year and how much $ generally collected from permits and fines.*

5.18 Does your community have a guidance manual on erosion and sediment control practices?

➲*If your community has developed guidance and/or requirements, please attach a copy.*

- ☐ Yes, we refer the development community to a state document
- ☐ Yes, we have our own guidance
- ☐ No
- ☐ Don't know
- ☐ Not applicable

If so, when was it last revised?

If it has been 5 years, consider updating the manual to keep up with new technologies!

5.19 Are perimeter control practices required along stream and wetland buffer boundaries? ☐ Yes ☐ No ☐ Don't know

5.20 Check all erosion and sediment control practices that your community commonly uses. Circle the ones that do not appear in your ESC guidance manual.

Phasing and Procedures:
- ☐ Construction sequencing
- ☐ Construction phasing
- ☐ Non-disturbance of open space (visible flagging)
- ☐ Non-disturbance of stream/ wetland buffers
- ☐ Site fingerprinting/reduced grading
- ☐ Construction during dry season
- ☐ Stockpile stabilization
- ☐ Exit tire wash
- ☐ Wash station (cement trucks)

Erosion Prevention
- ☐ Surface roughening (tracking)
- ☐ Stair-step grading
- ☐ Temporary seeding and mulching
- ☐ Erosion blankets (biodegradeable)
- ☐ Turf reinforcement mats (synthetic)
- ☐ Permanent seeding and mulching
- ☐ Rip rap channels
- ☐ Outlet protection
- ☐ Dust control
- ☐ Polyacrylamide (PAM)

Runoff Controls
- ☐ Pipe slope drains to bypass erodible soils
- ☐ Construction dewatering operations
- ☐ Dikes / berms as conveyance to ESC structures
- ☐ Silt ditch
- ☐ Temporary stream crossings

Sediment Control
- ☐ Sediment basin
- ☐ Multipurpose basin
- ☐ Sediment traps (dam)
- ☐ Silt fence
- ☐ Rock check dams
- ☐ Sediment tube check dams
- ☐ Stabilized construction entrance
- ☐ Filter fabric inlet protection
- ☐ Straw bales
- ☐ Block and gravel inlet and curb inlet protection
- ☐ Prefabricated inlet protection
- ☐ Sand / gravel bag barrier

Others:

➲:Summarize existing regulatory or programmatic **ESC** tools currently available to apply towards watershed protection:

Summarize gaps in ESC tool box:

Notes:

Tool #6. Storm Water Management (SMW)

Take a look at the stormwater program in your community to see how structural practices are incorporated into new development, redevelopment, or the existing landscape to help mitigate the impacts of urbanization and stormwater runoff on receiving waters.

6.1 Who is the local agency in charge of revising and enforcing SMW regulations?
List agency and contact information:

6.2 Does your community have a Phase I or Phase II NPDES stormwater permit?

If so, your community's stormwater program is expected to meet certain minimum measures, most of which fit nicely with watershed planning efforts…

- ☐ Phase I
- ☐ Phase II
- ☐ No
- ☐ Don't Know

If applicable, which components of the program (minimum measures) does your community do well?

Which could use some beefing up?

6.3 Is there a local stormwater ordinance?

➲*If stormwater is required on new development sites, please attach a copy of your regulation and additional guidance.*

- ☐ Yes, we refer to the state regs
- ☐ Yes, we have developed our own ordinance
- ☐ No
- ☐ Don't know

If so, when was it last revised?

If it's been a while, you may want to update it to reflect new guidance manuals, refined treatment criteria, and enforcement action, or stormwater utility considerations .

6.4 What are the design criteria for stormwater practices?

☐ Control peak discharge rate (flood control): _____

☐ Treat stormwater runoff for water quality: _____

☐ Recharge (by means of infiltration practices, etc.): _____

☐ Protect downstream channels: _____

☐ Other: _____

6.5 Are design criteria more stringent in areas draining to wetlands, trout streams, reservoirs, recharge areas, sensitive watersheds, or other resource areas? ☐ Yes ☐ No ☐ Don't know

If yes, describe criteria:

6.6 Do stormwater regulations include hydroperiod standards for downstream wetlands? ☐ Yes ☐ No ☐ Don't know

Fluctuations in water level due to changes in hydrology resulting from urbanization can significantly impact wetlands.

6.7 Describe any exemptions to stormwater requirements

6.8 Does your community provide guidance or set forth requirements on the types of stormwater practices that may be constructed?

➲ *If your community has developed guidance and/or requirements, please attach a copy.*

☐ Yes, we refer the development community to a state document
☐ Yes, we have our own guidance
☐ No
☐ Don't know

If so, when was it last updated?

If it's been over 5 years, you will need to update your guidance manual at a minimum in order to incorporate new practice designs and maintenance techniques.

6.9 What are the top three stormwater practices typically installed in your community?

If dry ponds make your list, then may not begetting as much water quality benefit as you could (i.e. you will have plenty of retrofit opportunities…)

6.10 Is a stormwater plan or other documentation required during the site plan review process? ☐Yes ☐No ☐Don't know

6.11 Does your community inspect stormwater practices during their construction? ☐Yes ☐No ☐Don't know

Proper construction/installation of stormwater practices is critical. Frequent inspection is important, particularly when ESC basins are being converted to post-construction stormwater ponds as downstream impacts are frequently observed during this transition.

6.12 Is an as-built or record drawing of the stormwater practice required after construction? ☐Yes ☐No ☐Don't know

It is important to keep track of the actual location of underground infrastructure, final design, and maintenance plan for all newly constructed practices.

6.13 Are stormwater practices inspected for maintenance upkeep or structural integrity on a regular basis? ☐Yes ☐No ☐Don't know

6.14 How frequently are stormwater practices inspected?

- ☐ Don't Know
- ☐ More than once a year
- ☐ Once a year
- ☐ Every two years
- ☐ In response to complaints
- ☐ Never
- ☐ Other:

6.15 Are inspections and maintenance more frequent in areas draining to sensitive areas such as wetlands, trout streams, reservoirs, recharge areas, or other resource areas? ☐Yes ☐No ☐Don't know

6.16	Who is typically responsible for maintaining stormwater practices? *If third party is responsible (not local gov), it is important that local government provide guidance on, enforce, and maintain record of proper maintenance activities.*	☐ Private owner ☐ Builder ☐ Homeowner's association ☐ Permitting agency ☐ Other ☐ Don't know ☐ Not applicable
6.17	Is there a maintenance agreement or covenant between the permitting agency and the private owner, builder, or homeowner's association in charge of maintenance?	☐Yes ☐No ☐Don't know
6.18	Are there penalties for not complying with the maintenance agreement or other applicable regulations applying to maintenance? If yes, please describe penalties.	☐Yes ☐No ☐Don't know
6.19	Does your community track STP locations, basic design information (type, drainage area), and maintenance records using GIS?	☐Yes ☐No ☐Don't know
6.20	Can natural wetlands be used for stormwater treatment?	☐Yes ☐No ☐Don't know
6.21	Are direct discharges of untreated stormwater to natural wetlands prohibited?	☐Yes ☐No ☐Don't know
6.22	Are constrictions on wetland outlets discouraged?	☐Yes ☐No ☐Don't know

➲:Summarize existing regulatory or programmatic **SWM tools** currently available to apply towards watershed protection:

Summarize gaps in SWM tool box:

Notes:

Tool #7. Non-Storm Water Discharges

Locating, quantifying, and controlling non-stormwater pollutant sources in the watershed (i.e. septics, sewer, illicit connections). Operation and maintenance practices that prevent or reduce pollutants entering the municipal or natural drainage system.

Who is the local agency(ies) or utility in charge of wastewater regulations and illicit discharges?
List agency contact information:

List utility contact information:

7.1	How does your community manage sanitary wastes *(check all that apply)*?	☐ Septic systems ☐ Aeration systems ☐ Package treatment plants ☐ Centralized wastewater treatment plants ☐ Other: ☐ Don't Know
7.2	Does your community have combined storm/ sewer system? *If you have combined systems, your community should be in the process of phasing these out.*	☐Yes ☐No ☐Don't know
7.3	Do the sanitary sewer trunk mains follow (check all that apply): *Often gravity driven, sewer networks typically run along stream corridors. If this is the case, you will want to field assess pipe conditions, particularly at manhole stacks and along pipe joints exposed at stream crossings.*	☐ Shortest distance ☐ Stream valley ☐ Other ☐ Don't Know ☐ Not Applicable
7.4	Does your local sewer authority promptly respond and fix sanitary sewer overflow? *Response within in 24 hours is considered prompt.*	☐Yes ☐No ☐Don't know ☐Not applicable
7.5	Does your community require enhanced nutrient removal from on-site waste water treatment systems?	☐Yes ☐No ☐Don't know

7.6 Does your community have regulations pertaining to septic system maintenance? ☐Yes ☐No ☐Don't know ☐Not applicable

Some communities, particularly in drinking water watersheds require inspection annually or every 2-3 years.

7.7 Does your community conduct inspections of privately owned septic systems? ☐Yes ☐No ☐Don't know ☐Not applicable

Describe program *(who, frequency, enforcement measures, etc):*

If not, find out how your community keeps track of on-site systems. Some communities have programs that provide free septic inspections for homeowners.

7.8 Does your community prohibit septic systems in sensitive wetland drainages or aquatic buffers? ☐Yes ☐No ☐Don't know ☐Not applicable

7.9 Does your community have GIS tracking system for septic locations, inspection, and maintenance records? ☐Yes ☐No ☐Don't know ☐Not applicable

7.10 Are there regulations regarding runoff from confined animal feeding lots? ☐Yes ☐No ☐Don't know ☐Not applicable

CAFOs are considered point source discharges.

7.11 Do you know the locations of all known hazmats (i.e. land fills, super fund sites, underground storage tanks) in your watershed? ☐Yes ☐No ☐Don't know

7.12 Is there a program to detect and remove illicit connections and discharges? ☐Yes ☐No ☐Don't know ☐Not applicable

If so, describe key elements of program *(agency, hotline, procedures, etc):*

You'll want to make sure your community has the legal authority to detect and repair illicit connections on private property.

➲:Summarize existing regulatory or programmatic **non-storm water tools** currently available to apply towards watershed protection:

Summarize gaps in non-storm water tool box:

Notes:

Tool #8. Watershed Stewardship Programs

Stewardship includes watershed education, restoration, and monitoring activities. Take a look at the education or outreach programs targeted towards fostering human behavior that prevents or reduces stormwater impacts and pollution generation over a range of land uses and activities. Many types of stewardship efforts can be applied towards meeting NPDES Phase II requirements.

Who is the local agency(ies) in charge of watershed and stormwater education, monitoring, and restoration?

List agency and contact information for education:

List agency and contact information for monitoring:

List agency and contact information for restoration:

8.1 Does your community administer or support education or outreach programs targeted towards *(check those that apply)?*

☐ Residents
☐ Commercial sector
☐ Industrial sector
☐ Municipal employees
☐ Other:

☐ Don't know
☐ None of the above

These programs don't have to be specific to watershed or stormwater. You'll want to keep these programs and the folks that implement them in mind as you develop stakeholder lists and recommendations as part of your watershed protection efforts.

If so, does this program include/provide watershed related education materials?

☐ Yes ☐ No ☐ Don't know
☐ Not applicable

If not, does it make sense to integrate stormwater education into any of the existing programs? Or do you think you'll have to create a new program?

If so, please check the topics/ activities promoted by the program?

Raising Awareness
- ☐ Streamwalks
- ☐ Storm Drain Stenciling
- ☐ Canoe Trips
- ☐ Watershed Map for Distribution
- ☐ Watershed Boundary Signage
- ☐ Stream Buffer Signage
- ☐ Wetlands Protection
- ☐ Other:

Homeowner Stewardship
- ☐ Water Conservation
- ☐ Lawn Fertilization
- ☐ Integrated Pest Management (IPM)
- ☐ Lawn Conversion/Lawnscaping
- ☐ Pet Waste Management
- ☐ Car Washing
- ☐ Automotive Maintenance
- ☐ Septic System Maintenance
- ☐ Other:

Training
- ☐ Build Your Own Rainbarrel
- ☐ Water Quality/ Macroinvertebrate monitoring
- ☐ Stream Assessment
- ☐ Other:

Activities
- ☐ Stream Clean-up
- ☐ Stream Buffer Planting
- ☐ Building a rain garden
- ☐ Other:

8.2 How many watershed stakeholder meetings have been conducted in the last year in your community?

- ☐ 0
- ☐ 1-3
- ☐ More than 3
- ☐ Don't know

8.3 Is there a recognized watershed group in your community?

☐Yes ☐No ☐Don't know ☐Not applicable

If so, list contact:

Watershed groups can be a great provider/administrator of education and outreach programs, restoration activities, and volunteer monitoring.

If so, does the watershed group play a role in (check all that apply):

- ☐ Watershed education
- ☐ Watershed assessment and Monitoring
- ☐ Watch dog (discharges, ESC, etc)
- ☐ Watershed planning
- ☐ Managing Conservation Areas
- ☐ Replanting Stream Buffers
- ☐ Stream Clean-up
- ☐ Stormwater Facilities maintenance
- ☐ Stormwater retrofitting
- ☐ Wetland restoration
- ☐ Septic Systems inspections/maintenance
- ☐ Other
- ☐ None of the above
- ☐ Don't know

8.4 Does the community provide grants or technical assistance to watershed groups to perform these services? ☐Yes ☐No ☐Don't know

If so, list grant/assistance program:

8.5 Are there any stream or wetland stewardship or volunteer monitoring programs within your community (i.e Adopt-a-stream, Adopt-a-wetland)? ☐Yes ☐No ☐Don't know

If so, describe:

8.6 Are there any stream or wetland restoration programs or projects within your community? ☐Yes ☐No ☐Don't know

If so, list contact and key elements of program:

8.7 Have you identified priority areas for wetland protection, conservation, restoration, or creation in the watershed? ☐Yes ☐No ☐Don't know

If you know where these places are, then you can proactively seek mitigation funds for implementation.

8.8 Have you conducted a residential behavior survey to determine homeowner activities and attitudes affecting water quality? ☐Yes ☐No ☐Don't know

This in addition to a quick drive thru of the neighborhoods in the watershed will help you target your educational message. You can also use a survey to establish baseline conditions.

8.9 Does your community have any restrictions on pet waste management? ☐Yes ☐No ☐Don't know

8.10 Does your community actively enforce dumping restrictions in stream valleys, wetlands, buffers and other conservation areas? ☐Yes ☐No ☐Don't know

8.11 Do you have restrictions or guidance on proper application/use of fertilizers and pesticides on public lands? ☐Yes ☐No ☐Don't know

8.12 Are there any landowner stewardship programs offered by your community? ☐Yes ☐No ☐Don't know

8.13 Does your community require or encourage any of the following techniques to protect stream and wetland quality in agricultural areas *(check those that apply)?*

- ☐ Conservation tillage
- ☐ Nutrient management plans
- ☐ Manure application
- ☐ Rotational Grazing *(rotating livestock between several small paddocks rather than allowing continuous grazing of one large pasture)*
- ☐ Off-stream Water Sources *(alternative water sources that can reduce livestock time in stream; most effective when used in conjunction with exclusionary fencing)*
- ☐ Buffer reforestation
- ☐ Exclusionary Fencing *(fencing that prevents of limits livestock from entering streams, wetlands, and their buffers)*
- ☐ Other:
- ☐ Don't know
- ☐ Not applicable

What types of technical assistance or cost share/incentive programs are available to farmers?

8.14 Are the following practices encouraged on vineyards?

- ☐ Integrated pest management (IPM)
- ☐ Buffer strips
- ☐ Erosion prevention (terracing, diversion, ditches, no-till cropping, etc.)
- ☐ Fertilizer reduction based on petiole analysis and/or soil testing
- ☐ Other

- ☐ Not applicable
- ☐ Don't know

What types of technical assistance or cost share/incentive programs are available to grape growers?

8.15 Are there any educational programs geared at golf courses for the following?

☐ Buffers
☐ Water use
☐ Runoff management
☐ Pesticide application
☐ Fertilizer reduction
☐ Spray irrigation
☐ Other

☐ Don't know
☐ Not applicable

What types of technical assistance or cost share/incentive programs are available to golf course managers?

8.16 Does your community have an emergency spill response plan? ☐Yes ☐No ☐Don't know

This is important particularly in drinking water watersheds where transportation corridors drain to reservoirs or where groundwater can be easily contaminated.

8.17 Is there a local household hazardous waste collection program? ☐Yes ☐No ☐Don't know

8.18 Does the local mosquito control program use alternative approaches that reduce insecticide use? ☐Yes ☐No ☐Don't know

8.19 Does your community operate an environmental hotline for illicit discharges, dumping, wetland fills, ESC failure, etc? ☐Yes ☐No ☐Don't know

If so, list contact information:

8.20 Have all municipal yards submitted a pollution prevention plan? ☐Yes ☐No ☐Don't know
➲*:Attach copy of basic municipal PPP.*

8.21 Does your community provide training on pollution prevention for (check those that apply):

☐ Municipal employees
☐ Contractors
☐ Commercial
☐ Business
☐ Industrial
☐ Recycle Centers
☐ Other:

☐ None of the above
☐ Don't know

8.22 Describe the type of watershed monitoring you conduct: ☐ Don't know

Type: (water quality, macros, wetland function, flow, performance monitoring)

Frequency:

Responsible party:

Protocols used:

➲*:Attach copies of baseline data or summary monitoring reports.*

8.23 How often is watershed monitoring data compiled and reported? ☐ Don't know

Data on watershed trends, performance monitoring, and project tracking should be reported annually.

8.24 Do local agencies provide training, guidance, and supplies to volunteers for monitoring? ☐Yes ☐No ☐Don't know

8.25 Is there a program to manage the spread of invasive plant species? ☐Yes ☐No ☐Don't know

If so, does the program target management of invasive wetland plants? ☐Yes ☐No ☐Don't know

➲:Summarize existing regulatory or programmatic **stewardship tools** currently available to apply towards watershed protection:

Summarize gaps in stewardship tool box:

Notes: