WEST VIRGINIA WETLAND PROGRAM PLAN

July 1, 2011

West Virginia Department of Environmental Protection

West Virginia Division of Natural Resources

INTRODUCTION

Following is West Virginia's strategy for wetland conservation, management and regulation. It identifies strategic actions the state will attempt to implement between 2011 and 2015. Readers should recognize that this plan is the State's first coordinated attempt at establishing program direction and is, therefore, a dynamic document likely to change regularly with changing conditions and be revised as lessons are learned during the implementation of the "Core Elements" described below.

The approach we took in writing the plan was to capture the spirit of the EPA guidance provided in the "Core Elements of an Effective State and Tribal Wetlands Program" but felt the need to add an outreach component. The West Virginia Wetland Program Plan (WPP) then consists of five core elements (Monitoring and Assessment; Restoration and Protection; Water Quality Elements; Regulation and Outreach, Information, Education and Coordination. We admit to having more or less knowledge and experience with these core elements and the level of detail in the tasks identified reflects that familiarity.

The overall goal of the WV Wetland Program Plan is to provide guidance and direction to the two state agencies (WV Department of Environmental Protection and WV Division of Natural Resources) directly involved with conserving and regulating wetland activities in the state.

| Core element | Goal or goals |
|--------------------------------|---|
| | Develop and operationalize a system that captures, manages, |
| | integrates and shares data that can be effectively utilized to assess |
| Monitoring and Assessment | and report on condition, status and functions of WV wetlands; |
| | identify trends in these assessments; and identify wetland |
| | conservation targets and threats to wetland resources. |
| | Develop and adopt a mitigation strategy that incorporates |
| Restoration and Protection | replacement of wetland function; identify unique and exceptional |
| | wetlands and offer those sites additional protection. |
| | Develop and adopt standard measures for: wetland integrity and the |
| Water Quality Flaments | following wetland functions: nutrient processing, sediment capture, |
| Water Quality Elements | flood attenuation, groundwater recharge, support of biodiversity, |
| | and carbon sequestration. |
| | Update state legislation that provides authority and guidance for |
| Regulation | requiring mitigation that replaces lost wetland value and function |
| Regulation | and recognizing the WVWRAP (WV Wetland Rapid Assessment |
| | Protocol) as the tool for measuring value and function. |
| | Increase the level of understanding of the value of wetlands by |
| Outreach/Education/Information | citizens, agencies and organizations and increase the level of |
| | coordination and cooperation between all parties. |

Building capacity to carry out the plan is included in all of the core elements as is the absolute need to secure a stable and sustainable source of funding.

The tasks in the table assigning a time line to the core elements likely require some explanation to be fully meaningful to the reader both to appreciate the importance of the task and to provide some insight into our status relative to achieving objectives. The following section provides that detail.

MONITORING AND ASSESSMENT

<u>Issue</u> - Data management — The West Virginia Division of Natural Resources (WVDNR) has been engaged in wetland assessments and research for decades. Much of these data, while of great value to furthering wetland conservation and maintaining wetland function and integrity, were collected, and continue to be collected, to resolve problems and answer questions not posed by the Environmental protection Agency (EPA), the US Army Corps of Engineers (COE) or the West Virginia Department of Environmental Protection (WVDEP). Because these data were collected in discrete units over time they are not fully integrated into a useful tool for managing and conserving WV wetlands.

<u>Strategy</u> – Identify, integrate and make available all extant wetland data. WVDNR collects a considerable amount of wetland related data. These include:

The PLOTS data base maintained by WVDNR's WV Natural Heritage Program. Under the auspices of this program WV has conducted and continues to conduct intensive studies at more than 2000 sites since 1980. WV developed the WV Wetland Rapid Assessment Procedure (WVWRAP) in 2008 to collect wetland ecological integrity and provision of function information. Prototypical landscape level descriptive metrics are currently being developed. The National Wetland Inventory (NWI) is a US Fish and Wildlife Service digital product providing identification and delineation of WV wetland polygons. The product is somewhat dated (based on 1980-1986 color infrared imagery), only identifies wetlands larger than 1-3 acres and is not completely accurate relative of wetland polygon locations largely because of the scale of the base imagery (1:58,000). Despite these limitations it remains the best statewide coverage of WV wetlands.

Functional assessments are being developed under two scenarios. The first relies on descriptive landscape metrics used to develop indices of wetland integrity and function. The second level incorporates these landscape descriptors and adds field data collected using the WVWRAP. Level 3 functional assessment validation data will be collected beginning in 2011 to provide support for the Level 1 and 2 assessments.

In 2003, a graduate student collected extensive wetland data to compare the integrity of vegetation and wildlife communities at 11 constructed wetlands to four natural wetlands. These data add to the detailed information set useful in evaluating and validating landscape and rapid assessment metrics and indices. In 2008, WVDNR collaborated with the West Virginia University to develop an index of biotic integrity (IBI) for wetlands. Intensive studies of vegetation, birds, invertebrates, soils etc. provide valuable validation for rapid assessment procedure and protocol. WVDNR routinely collects data on the numbers and distribution of breeding birds under several programs. Much of this information is collected at wetlands and provides validation of integrity and functional assessments. WVDNR routinely collects data on the numbers and distribution of anurans and salamanders consisting of frog call counts and amphibian egg mass counts. These data contribute to a long-term wetland monitoring strategy and provide some validation of integrity and functional assessments conducted at Level 1 and 2. Data resulting from the National Wetland Comprehensive Assessment will provide very detailed wetland descriptive data valuable for validating Level 1 and 2 assessments as well.

These data need to be consolidated, linked or otherwise made available for use by a wider audience. Progress in that direction comes from development of a web-based tool (Tool) to provide various levels of access to additional federal and state agencies, the environmental consultant industry and the general public. A beta version of the Tool will be completed in December 2011 and a final product is projected to be available in 2012.

WV regulatory and management agencies need to identify additional sources of data for integration. Considerable additional data is known to exist. These data sets need to be examined for potential integration of linkage to the larger data set. Among the data sets that need to examined are: (1) Section 404 and 401 permit and state certification data. COE, WVDEP and DNR are likely conduits to these data. Wetlands created to satisfy individual mitigation requirements and mitigation bank data need to be examined as well. (2) The Natural Resources Conservation Service (NRCS) constructs wetlands as part of their mission. Location and details of these wetlands need to be examined for inclusion. (3) The US Forest Service creates wetlands to provide habitat. These need to be examined. (4) The WVDNR creates wetlands to provide habitat and recreational opportunity. These need to be examined.

Plan for capture of additional data. The web-based database tool being developed is of a modular design which will allow for considerable flexibility to address future needs currently unidentified.

Strategy -- Provide data access

WVDNR, WVDEP, EPA and COE will be provided access beginning with the roll-out of the beta version. FWS, FS and NRCS will be provided access upon completion of the final product and will be dependent on their interest in receiving access.

Providing early access to environmental consultants is an important consideration. WV expects that the Tool will be an important component in future aspects of permitting and certification.

Issue -- Functional and ecological assessment.

WVDNR has conducted wetland assessments for decades to classify wetlands by community types and by their level of ecological integrity. While these data provide insight into wetland condition and for use in validating larger scope assessments, their limited focus (spatially and because of their emphasis on plant species and communities) provides little information to validate either the recently developed *West Virginia Wetland Rapid Assessment Procedure* (WV WRAP) or the wetland functional indices derived from it and additional landscape metrics. EPA will require statewide wetland conditional and assessment reports beginning in the near future and the recent issuance of the so called "New Mitigation Rule" places additional burden on quickly developing and validating the usefulness of WVWRAP and its derived indices. The new rule requires replacement of functional wetland values as a mitigation condition when wetlands are negatively impacted or destroyed which differs significantly from the current rule requiring an acreage replacement.

<u>Strategy</u> -- Develop and implement protocols to collect data to facilitate assessments

Level 1 (Landscape) assessments. These are desktop, Geographic Information System (GIS)-dependent assessments that can be developed to provide broad condition and functional assessments using currently available geo-spatial data. WV is currently developing a landscape assessment model to provide this information. Criteria for the model are that it utilize extant data or metrics derived from those data to provide a landscape assessment of wetland ecological integrity and wetland provision of multiple functions: flood attenuation, groundwater recharge, water quality (nutrient processing, sediment trapping, pollution abatement), support of biodiversity (wildlife habitat, rare species and communities, pollinators), carbon sequestration, cultural values (historical, aesthetic, educational and recreational) and provisioning. To date, 87 potential metrics for analysis have been selected from a combination of WVWRAP derived and landscape level assessment metrics. Algorithms to extract and capture the landscape metrics have been developed and tested in one or more counties. A critical consideration in developing the model is that the universe of wetlands be adequately defined. WV has selected the NWI as the basis for its statewide landscape assessment. Making that decision presented an immediate problem in that many of the NWI

wetland polygons proved to be displaced from their actual locations by random distances and directions of up 100 meters. Hence, describing conditions around a polygon that does not represent the actual location the wetland is grossly misleading. WV is currently examining each NWI wetland polygon and registering it to its correct location. In March, 2011, polygons in 20 of 55 WV counties have been re-registered and their locations validated. Polygons in 9 counties have been re-registered but not validated and polygons in the remaining 26 counties are in earlier stages of the re-registration process.

Level 2 (Rapid) assessments are intense, short duration field examinations of conditions at selected wetlands. WVWRAP is WV's rapid assessment procedure and it commits no more than two individuals to four hours work at a site. WVWRAP captures in excess of 100 descriptive and assessment metrics at each site which are used directly or indirectly to provide wetland integrity and functional assessments. The WVWRAP protocol was developed in 2010 and (to date) has been applied at 300 sites to validate the technique. In addition, WVWRAP metrics are being used to develop indices of integrity and function. These indices will utilize both WVWRAP and Level 1 information.

Intensive validation studies (Level 3) are detailed exercises conducted at a limited number of sites to expand the management and regulatory information base. They could require numerous re-visits to collect all necessary information. WVDNR has conducted intensive wetland studies since the 1980s. Data for over 2000 sites are maintained in the agency's PLOTS data base. These data are remarkable relative to the number of sites studied, the detailed level of the studies and their identification of rare plant and animal communities, but their utility relative to validating level 1 and Level 2 assessment is lacking for several reasons. The objectives of these studies were to (1) identify and describe wetland vegetation communities extant in WV and (2) classify wetland communities in WV relative to their integrity and rarity. High elevation wetland communities have been classified and ranked. Wetland communities above 730 meters (2400 feet) elevation in the Allegheny Mountain region of West Virginia are characterized by exceptionally high biodiversity and conservation value. WVDNR identified 41 high elevation wetland community associations, 20 of which have high global conservation priority and the remaining 21 types have high state conservation priority. WVDNR has documented 590 animal and more than 900 plant species from high elevation wetlands. Rare taxa include five mammals, 13 breeding birds, one reptile, three amphibians, two snails, two crayfish, 58 odonates, six butterflies, four spiders, and 145 species of vascular plants. Ongoing studies by WVDNR will complete a wetland classification and rarity assessment for remaining WV wetland communities in 2011 or early 2012.

Strategy -- Develop wetland function and provision of services assessment algorithms to produce functional indices and an index to ecological integrity. In addition to the ecological

integrity index, WV is considering the developing indices to the following functions: Wildlife Habitat, Flood Attenuation, Groundwater Recharge, Carbon Sequestration, Support Of Biodiversity, Support Of Aesthetic, Cultural And Educational Values, Provisioning, and Support Of Pollinators. Following development and testing, WV must secure concurrence from WVDNR, Federal regulatory agencies and WV DEP. Only then will we seek legislative authority to implement functional indices as a regulatory tool.

To validate indices we will compile a set of reference standards against which individual natural wetlands, constructed wetlands and restored/enhanced wetlands can be measured (cf. the Water Quality Core Element section).

<u>Strategy</u> -- Conduct local and statewide assessments

Develop a sampling strategy and protocol. WV has adopted a sampling strategy that seeks to assess wetlands in each of 32 Level IV eco-regions at a level providing statistical confidence (p=.85) that presence/absence of NWI-defined wetland polygons are accurately estimated, statewide; that wetland ecological integrity assessment estimates for all WV NWI polygons can be made and accurately classified into one of four categories from largely un-impacted to severely stressed; that estimates of wetland functions can be made for all WV NWI polygons and accurately classified into one of four categories from highly to marginally functional; that similar estimates can be made at increasing smaller scale (i.e. for each eco-region and each HUC-8) but with lower expected levels of confidence.

Statewide landscape level assessments for all NWI polygons are currently underway. Data from this exercise will be integrated with Level 2 field assessments also ongoing at a stratified random sample of NWI wetlands. Field assessments began in 2010 and will be completed no later than 2012. Analyses will be completed in 2012. Following the 2012 analyses, the product will be reviewed and revised to address the needs of WVDEP, WVDNR and USEPA. The last step will be to adopt the final strategy, secure concurrence among WVDEP, WVDNR and USEPA and schedule a continuous process of assessments and reporting.

RESTORATION AND PROTECTION

Issue -- Adjust the state's current approach to mitigation.

<u>Strategy</u> -- Develop a mitigation process that incorporates wetland function and is compliant with the "new mitigation rule". The current mitigation strategy requires a ratioed replacement for impacted wetlands and is not entirely compliant. WV will need to secure broad agreement that any new approach meets both state and federal needs. Specifically, USEPA and USCOE must concur that any strategy developed satisfies their needs and requirements and WVDEP

and WVDNR must concur with any strategy developed. Prior to implementation, state regulatory authority for WVDEP to implement the new mitigation criteria must be secured.

<u>Issue</u> – Identify and offer additional protection to exceptional wetlands and wetlands under public management.

Strategy -- Identify and conserve wetland 'special case' sites. WV is proposing to identify by type and location unique, exceptional and/or rare wetlands supporting unique, rare or exceptional plant or animal species and/or communities, wetlands of exceptional ecological integrity, wetlands providing exceptional ecological function, and wetlands that cannot be easily replaced. Further we are proposing to identify plants, animals and communities dependent on wetlands so we can afford them additional protection.

<u>Strategy</u> – Stewardship. WV state agencies (largely WVDNR) will continue a high level of stewardship of wetlands under its control and coordinate, cooperate, support and assist other state and federal agencies that control or could affect WV wetlands. Invasive species and emerging diseases are an increasing threat to WV wetlands. WV will attempt to increase control of invasive species on properties under its control, assist other agencies with their efforts and establish one or more demonstration areas where invasives have been controlled.

WATER QUALITY ELEMENTS

Issue – Evaluate specific water quality standards.

<u>Strategy</u> – Develop standard measures for wetland integrity, the final set of functions adopted and for stressor levels. Reference conditions for these metrics will allow comparisons to be made between specific wetlands and the broad spectrum of conditions existing in WV wetlands. At this point we expect to use the range of ecological integrity indices and the ranges of scores for provision of function as calculated from the ongoing assessments to determine means, medians and deviations. Scores will be reduced to 3-5 categories and offered to all cooperating agencies as the WV measures of condition. Water quality standards provisions relative to wetlands will be evaluated in the next scheduled triennial review.

<u>Strategy</u> – Wetland-specific conditions will be identified for individual wetlands and wetland types as is appropriate.

REGULATION

<u>Issue</u> – Considerable work needs to be completed to maximize the conservation value derived from the data collected and analyzed.

<u>Strategy</u> – Operationalize WVWRAP and make it available to developers and the regulatory community to standardize expectations and requirements

<u>Strategy</u> – Review and revise the WV mitigation strategy to ensure compliance with the new mitigation rule and to maximize use of newly developed wetland science.

<u>Strategy</u> – Provide appropriate training and certifications for the newly introduced protocols and procedures.

<u>Strategy</u> – Secure state regulatory authority to implement the new procedures.

OUTREACH/EDUCATION/INFORMATION

<u>Issue</u> – Successfully communicating the ideas presented in this plan to a wide range of internal and external audiences is critical to its eventual success.

Strategy – increase the amount and quality of wetland information made available to the public

Strategy – provide federal, state and local WV governments and agencies with training, support, encouragement and information specific to their needs and responsibilities.

<u>Strategy</u> – increase the level of coordination between and among agencies having wetland conservation responsibilities.

TIMELINE

The following tables represent our attempt to convert the strategies identified above into a series of manageable tasks distributed over the next five years. They will most certainly be rearranged and re-prioritized over the next several years but we believe they set a realistic direction to the WV program.

| gies ←=======→ Ta | sks | | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|--|--|--|--|---|--|--|
| Integrate Known Data | | | Begin | Complete | - | - | - |
| Identify & Add Additional Data | | | - | Begin | Continuous | Continuous | Continuous |
| Provide Access | | | - | Begin | Complete | Continuous | Continuous |
| | Maintain the data base | | Continuous | Continuous | Continuous | Continuous | Continuou |
| Maintain Data | Hire a wetland project manager | | | Begin | Continuous | Continuous | Continuou |
| | Provide access to data | | Begin | Continuous | Continuous | Continuous | Continuous |
| wetlands | | | Complete | - | - | - | - |
| Determine status of NWI wetlands relative to Presence/Absence | Protocol | | Develop & Implement | Report (Suitable For 305b) | - | - | - |
| Assess condition of NWI wetlands relative to Integrity | Protocol | | Develop & Implement | Report (Suitable For 305b) | - | - | - |
| Determine status of NWI wetlands relative to Function | Protocol | | Develop & Implement | Continue | Report (Suitable For 305b) | - | - |
| WVWRAP sample to provide statewide Integrity | Protocol | | Develop & Implement | Continue | Report (Suitable For 305b) | - | - |
| WVWRAP sample to provide statewide Function | Protocol | | Develop & Implement | Report (Suitable For 305b) | - | - | - |
| Sampling Strategy | Protocol | | Develop & Implement | Report (Suitable For 305b) | Review/ revise sampling strategy | Implement revised sampling strategy | Implement revised sampling strategy |
| Validate Integrity | - | | - | Review/Adjust Current Approach | Report | - | - |
| Validate Function | Protocol | | Develop & Test | Implement | Report | - | - |
| Establish Reference Sites | Develop Monitoring Protocol | | - | - | Develop Criteria Complete Protocol | - | - |
| | Select sites | | - | - | - | Select sites | - |
| | Integrate Known Data Identify & Add Additional Data Provide Access Maintain Data Re-register all NWI wetlands Determine status of NWI wetlands relative to Presence/Absence Assess condition of NWI wetlands relative to Integrity Determine status of NWI wetlands relative to Integrity Determine status of NWI wetlands relative to Function WVWRAP sample to provide statewide Integrity WVWRAP sample statewide Function Sampling Strategy Validate Integrity Validate Function | Integrate Known Data Identify & Add Additional Data Provide Access Maintain the data base Hire a wetland project manager Provide access to data Re-register all NWI wetlands Determine status of NWI wetlands relative to Presence/Absence Assess condition of NWI wetlands relative to Integrity Determine status of NWI wetlands relative to Frotocol Protocol Protocol Protocol Protocol Protocol Sampling Strategy Protocol Validate Integrity Validate Function Protocol Develop Monitoring Protocol | Integrate Known Data Identify & Add Additional Data Provide Access Maintain the data base Hire a wetland project manager Provide access to data Re-register all NWI wetlands Determine status of NWI wetlands relative to Presence/Absence Assess condition of NWI wetlands relative to Integrity Determine status of NWI wetlands relative to Integrity Determine status of NWI wetlands relative to Function WVWRAP sample to provide statewide Integrity WVWRAP sample to provide Statewide Function Sampling Strategy Protocol Validate Integrity Validate Function Establish Reference Sites | Integrate Known Data Identify & Add Additional Data Provide Access Maintain the data base Hire a wetland project manager Provide access to data Re-register all NWI wetlands Pelative to Presence/Absence Assess condition of NWI wetlands relative to Integrity Determine status of NWI wetlands relative to Integrity Determine status of NWI wetlands relative to Frotocol Towns and the protocol Protocol Develop & Implement Develop & Implement | Integrate Known Data Begin Complete | Integrate Known Data Begin Complete Develop & Continuous Con | Integrate Known Data Begin Complete |

| | Irreplaceable wetlands (largely bogs and fens) | - | Complete initial identification | Continuous | Continuous | Continuous |
|--|--|--|--|------------|------------|------------|
| | Wetlands supporting rare plant and animal communities | Develop a list of rare wetland communities, begin | Complete initial identification | Continuous | Continuous | Continuous |
| | Wetlands supporting rare species | Develop a list of rare wetland species, begin | Complete initial identification | Continuous | Continuous | Continuous |
| Identify unique/exceptional wetlands | Wetlands with exceptional integrity or providing outstanding function | - | Complete initial identification | Continuous | Continuous | Continuous |
| | Un-fragmented wetland complexes | - | Complete initial identification | Continuous | Continuous | Continuous |
| | Wetlands most threatened by development, mineral extraction, agriculture, energy production and transmission | - | Complete initial identification | Continuous | Continuous | Continuous |
| Develop/implement a strategy to protect unique/exceptional wetland resources | | - | Develop strategy and secure concurrence | Implement | Continuous | Continuous |
| Build capacity | | Continuous | Continuous | Continuous | Continuous | Continuous |
| Secure stable/sustainable funding | | Continuous | Continuous | Continuous | Continuous | Continuous |

| Strat | tegies ←======→ Tas | cs | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|--|----|---------|--|--|---|------------|
| Mitigation performance standards | Develop and implement | | Develop | Achieve Concurrence and secure legislative authority | Implement | Continue | Continue |
| WV Wildlife Conservation Action Plan | Incorporate in application and permitting process | | - | Achieve concurrence on a strategy | Implement | Continue | Continue |
| Adjust mitigation conditions to increase buffering in at least some | Identify sites, conditions and situations where larger buffers would be beneficial | | - | - | Begin | Complete and make recommendations | - |
| cases | Develop and implement new buffering conditions | | | | | Achieve concurrence and Implement | Continue |
| Encourage agencies to restore/construct wetlands | | | Begin | Continue | Continue | Continue | Continue |
| Adjust mitigation strategy to address replacement of value and function | | | - | Develop draft strategy | Secure agency concurrence and legislative authority; implement | Continue | Continue |
| | Irreplaceable wetlands (largely bogs and fens) | | - | Complete initial identification | Continuous | Continuous | Continuous |
| | Wetlands supporting rare plant and animal communities | | - | Complete initial identification | Continuous | Continuous | Continuous |
| Identify unique/exceptional | Wetlands supporting rare species | | - | Complete initial identification | Continuous | Continuous | Continuous |
| wetlands | Wetlands with exceptional ecological integrity or providing outstanding function | | - | Complete initial identification | Continuous | Continuous | Continuous |
| | Un-fragmented wetland complexes | | - | Complete initial identification | Continuous | Continuous | Continuous |
| Develop a strategy to protect unique/exceptional wetlands | | | - | - | Implement | Continuous | Continuous |

| Core Element | Restoration an | d Protection (d | continued) | | | | | |
|--|--|-----------------|------------|------------|------------|------------|------------|------------|
| Stra | Strategies ←====== Tasks | | | 2011 | 2012 | 2013 | 2014 | 2015 |
| Increase level of coordination and communication with agencies | | | | Begin | Continue | Continue | Continue | Continue |
| Maintain a high level of stewardship on public land | | | | Continue | Continue | Continue | Continue | Continue |
| Control invasive species | Increase level of interagency coordination | | | Begin | Continue | Continue | Continue | Continue |
| | Establish a demonstration area | | | | Begin | Complete | | |
| Build capacity | | | | Continuous | Continuous | Continuous | Continuous | Continuous |
| Secure stable/sustainable funding | | | | Continuous | Continuous | Continuous | Continuous | Continuous |

| | ter Quality Elements ←=======→Tasks | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|--|------------|------------|-------------------------------|--|------------|
| Develop measures of wetland integrity reference condition | | | Draft | Final Report | -521 | |
| Develop measures of functional reference conditions | | | Draft | Final Report | | |
| Develop measures of stressor response | | | Draft | Final Report | | |
| Identify specific wetlands with high WQ functions necessary to protect downstream integrity | | | | Complete Initial Selection | Continuous | Continuous |
| Identify wetlands suitable for restoration | | | | Initial Selection | Continuous | Continuous |
| Evaluate wetland components in Water Quality Standards | | | | | Consider during Triennial Review process | |
| Build capacity | | Continuous | Continuous | Continuous | Continuous | Continuous |
| Secure stable/sustainable funding | | Continuous | Continuous | Continuous | Continuous | Continuous |

| Strate | gies ←======→ Ta | isks | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|---|--|---------------------|------------------|------------|------------------|------------|
| Daviden and | For state and federal agencies | | Begin | Complete | Continuous | Continuous | Begin |
| Develop and implement a web-based tool providing | For the general public | | - | Begin | Complete | Continuous | Continuous |
| access to applications, permits and certifications | For consultants, developers and permit applicants; provide training and certification | | Begin | Complete | Continuous | Continuous | Continuous |
| Secure state regulatory authority for: | | Replacement ratios supporting functions and values | | Begin | Continue | Continue | Continue |
| | New mitigation standards | Providing additional protection to named unique/exceptional wetlands | | Begin | Continue | Continue | Continue |
| | | Mitigation performance standards | | Begin | Continue | Continue | Continue |
| Evaluate use of WVWRAP as part of | | Application Process | Begin | Continue | Continue | Continue | Continue |
| the application & monitoring process | | Mitigation Site Monitoring | - | Begin | Continue | Continue | Continue |
| Provide training and supporting information to non-regulatory conservation agency staff relative to identifying and reporting violations | | - | Develop Training | Provide Training | - | Provide Training | - |
| | Add staff | | Begin | Continue | Continue | Continue | Continue |
| Increase field presence of regulatory staff | Transition from a reactive to a proactive strategy | | Begin | Continue | Continue | Continue | Continue |
| Build capacity | | | Continuous | Continuous | Continuous | Continuous | Continuous |
| Secure stable/sustainable funding | | | Continuous | Continuous | Continuous | Continuous | Continuous |

| Core Element | t: Outreach/Info | rmation/Educa | ation/Coordi | nation | | | | |
|-------------------------------|--|---|--------------|--|------------------------------------|--|------------------------|------------------------|
| Stra | ategies ←======→ T | asks | | 2011 | 2012 | 2013 | 2014 | 2015 |
| Public outreach | Update wetland conservation and natural history information on the WVDNR website | | | | Complete | | | |
| | Increase wetland emphasis within the WV Master Naturalist Program | | | Continuous | Continuous | Continuous | Continuous | Continuous |
| | Develop a wetland "trunk" for elementary schools | | | | Complete | | | |
| | Publish/revise a wetland regulations brochure | | | | | Complete | | |
| | Publish a wetlands atlas for WV | | | | | Complete | | |
| State and local government | County/City | Provide each county and municipality with information on the location and values and functions of wetland resources in their area of responsibility | | Complete 5 counties | Complete an additional 15 counties | Complete an additional 35 counties (i.e. remainder of the state) | | |
| | рон | Facilitate transfer of wetland value and function information during early stages of construction planning | | Solicit DOH Interest And Support | Develop And Deliver A Product | Support The Product | Support The Product | Support The Product |

| | | Provide information to prevent fragmentation and encourage connectivity of wetlands | Build a tool to facilitate transfer of function and value information to support sound implementation of DOH wetland impacting practices | - | Complete | Provide Training | - | Provide Training |
|-----------------------|------------------------|---|--|--------------------------|-------------|------------------|----------|---------------------|
| | WVDNR | Encourage wetland creation | | Begin | Continue | Continue | Continue | Continue |
| | | Maintain MOU with WVDEP | | Continue | Continue | Continue | Continue | Continue |
| | WVDEP | Maintain high level of coordination | | Continue | Continue | Continue | Continue | Continue |
| | WVDEF | Maintain MOU with WVDNR | | Continue | Continue | Continue | Continue | Continue |
| | WV Conservation Agency | | | ? | ? | ? | ? | ? |
| | US ACE | Cooperation in 404/ 401 and In- Lieu mitigation processes | Continue | Continue | Continue | Continue | Continue | Continue |
| Federal government | US Forest Service | Provide Forest Supervisors with specific information on the value and functions of their National Forest wetlands | | - | Complete | - | - | - |
| | | Encourage construction of vernal wetlands | | Continue | Continue | Continue | Continue | Continue |
| | NRCS | Build a tool to facilitate transfer of function and value information | | Complete Beta Version | Refine Tool | Continue | Continue | Continue |

| | to District Conservationists to support sound implementation of NRCS wetland practices | | | | | |
|---|--|------------|------------|------------|------------|------------|
| State and Federal agencies | Meet twice each year | Continuous | Continuous | Continuous | Continuous | Continuous |
| Build capacity | 7*** | Continuous | Continuous | Continuous | Continuous | Continuous |
| Secure stable/sustainable funding | | Continuous | Continuous | Continuous | Continuous | Continuous |