## Enhance Watershed Monitoring to Assess Progress Toward the Chesapeake Bay TMDL

### Summary

The Chesapeake Bay Program (CBP) is planning to expand the nontidal water-quality monitoring network to better track progress toward the Chesapeake Bay Total Maximum Daily Load (TMDL). The expanded network will:

- Increase monitoring in major source sectors (agricultural, urban, suburban areas) which are the focus of the new TMDL.
- Enhance monitoring in watersheds with increased BMP implementation in order to document water-quality improvements of priority BMPs; this information is critical to assess effectiveness of the BMPs.
- Increase monitoring sites in more local areas (less than 100 square miles), critical land use settings (urban and agricultural settings) and the Coastal Plain (which is under represented), in order to enhance the CBP watershed model for the 2017 TMDL re-evaluation.

The planned expansion of the network will address recommendations of the STAC Monitoring Realignment Action Team (MRAT) (2009) and recent findings of the National Academy of Scientists' (NAS) report that stated *"Targeted monitoring programs in representative urban and agricultural watersheds and subwatersheds would provide valuable data to refine BMP efficiency estimates, particularly at the watershed scale, and thereby improve Watershed Model predictions."*

The planned expansion will add 37 sites for a total of 120 sites in the Bay watershed by the end of 2012. In 2010, the shared cost of the network was $3.7M, which is supported with funds from USEPA, USGS, the states, and local jurisdictions (supporting a portion of the stream gaging in the watershed). The additional 37 sites would be supported primary by an additional $2M of USEPA funds provide to the jurisdictions.

The purpose of this document is to provide the rational for the expanded sites and detailed information on their proposed locations and estimated costs. The proposed expansion is going to be approved by the CBP Water-Quality Goal Implementation Team and discussed by the Management Board prior to implementation.

### Justification for enhancements to the nontidal network

The CBP is implementing a TMDL for the Chesapeake Bay and its tidal tributaries to meet water quality standards of dissolved oxygen (DO), water clarity and chlorophyll *a* necessary to support healthy living resource habitat. The TMDL will be achieved by having the states and federal government reduce nutrient and sediment loads from the Bay watershed. There will be three primary ways to track progress toward the TMDL:

- Monitor nutrients and sediment in rivers in the watershed to assess progress in reducing loads;
- Track implementation of nutrient and sediments reduction practices and use the CBP watershed model to estimate load reductions in each state;
- Monitor levels of DO, clarity/SAV and chlorophyll in the Bay and tidal tributaries to assess if water-quality standards are achieved.

This document focuses on ways to improve the monitoring of nutrients and sediment in the Bay watershed to help assess progress toward the TMDL by enhancing the CBP nontidal water quality monitoring network.

The USEPA, the six states in the watershed, and USGS established the current CBP nontidal monitoring network in 2004 to measure water-quality improvements to help states assess progress toward their tributary strategies for nutrient and sediment reduction across the Bay Watershed (Figure 1). The CBP plan for the network had 200 proposed sites, as of 2010, 88 sites have been implemented. This CBP network provides the only long-term, consistent, and coordinated monitoring effort across all jurisdictions in the Chesapeake Bay watershed. The majority of the current sites are on larger streams (drainage areas of greater than 600 square miles) to meet the original network objective to monitor the states' "tributary strategy" basins. Therefore, the current network does not adequately represent the monitoring needs of the new TMDL that requires an emphasis on monitoring in source sectors.

The need for monitoring in smaller areas in individual source sectors (primary agricultural and urban/suburban lands) was stated both through the STAC review of the monitoring program (2009) and the recent National Academy of Scientists' (NAS) evaluation of the CBP's nutrient reduction program and strategy. The NAS stated:

*"Targeted monitoring programs in representative urban and agricultural watersheds and subwatersheds would provide valuable data to refine BMP efficiency estimates, particularly at the watershed scale, and thereby improve Watershed Model predictions." (NAS 2011, 4)*

A 2009 review by STAC through the Monitoring Realignment Action Team (MRAT) process identified the following improvements that need to be made to address multiple objectives of the network including TMDL monitoring and assessment:

- Increase monitoring in major source sectors (agricultural, urban, suburban, etc.) that will be the focus of the new TMDL and USDA Farm Bill funding.
- Add monitoring sites in smaller watersheds to support development of more local aspects required in Phase II and III of the watershed implementation plans (WIPs).
- Increase monitoring sites in a variety of scales (county level), land use (especially urban/suburban) and physical settings (such as the Coastal Plain) in order to improve the CBP watershed model calibration for the 2017 TMDL re-evaluation.
- Monitor in watersheds with increased BMP implementation in order to document water-quality improvements of priority BMPs; this information is critical to assess effectiveness of the BMPs.

Additional TMDL monitoring needs include:

- Increase monitoring in each state in order to aid in accountability toward communicating progress toward achieving actions in the WIPs. This also addresses public comments on the TMDL that called for increased monitoring.
- Immediate implementation of sites is needed so there is adequate data (at least 5 years) for load and trend analysis to support assessment of Phase II WIPs and 2017 TMDL review and preparation of Phase III WIPs.

**Proposed enhancements to nutrient and sediment monitoring in the watershed in 2011-12**

The USEPA worked with the six states, the District of Columbia, USGS and other major monitoring organizations throughout the watershed to recommend 41 suitable sites for

potential expansion of the network. Further prioritization selected 37 sites to improve the existing nontidal network in its ability to track changes in water quality over time to support TMDL monitoring. Most of these sites are new sites and a few are existing sites ("secondary sites") that are scheduled for an upgrade in monitoring frequency (to become "primary sites") and therefore will be less expensive to implement. The map shows 37 sites identified by the major monitoring organizations for inclusion in the network (Figure 2). Each of the sites was chosen to address one or more of the monitoring needs listed above. Collectively the sites provide:

- Improved assessment of changes in major source sectors (agricultural, urban, suburban, etc.).
- Increased sites in smaller watersheds to provide improved information for local governments and watershed groups.
- Improved information in areas lacking monitoring (such as the Coastal Plain) to improve future calibration of the CBP watershed model.
- Monitoring in watersheds with increased BMP implementation to show effect of management actions.
- Increased monitoring in each state to help assess progress toward meeting their allocations.

Currently funding for the network (see partnerships section for more details) is about $3.7M of which about $916,000 is provided by the EPA CBP.

**Funding Details**
Current funding: EPA CBP program: $916,000/yr;
Cost assumptions: New gage- one time cost $15,000; Secondary site upgraded to primary site- $20,000/yr-36,000/yr; New primary site- $46,000/yr

**Proposed increase FY2011 (Table 1): $987,100**

- 19 new primary sites (Figure 2)
    - including 1 secondary site upgraded to primary site and 11 out-of-network existing monitoring sites with stream gages
- 7 new stream flow gages
- Sites funded for FY11 were given priority if they were in small to moderately small watersheds (18 sites). Sites were also chosen to improve assessment of changes in major source sectors (7 new ag sites, 9 new urban sites), and watersheds with a large degree of BMP implementation, and will provide data in areas lacking monitoring to improve future calibration of the CBP model (i.e. Coastal Plain- 9 new sites)
- Brings District of Columbia online as a monitoring partner and increases monitoring coverage in Maryland, Pennsylvania, Virginia and West Virginia

**Proposed increase FY2012 (Table 2): $951,100**

- 18 new primary sites (Figure 2)
    - including 4 secondary sites upgraded to primary sites and 4 out-of- network existing monitoring sites with stream gages
- 10 new stream flow gages
- Sites were chosen to improve assessment of changes small watersheds (4 sites), in major source sectors (8 new ag sites, 2 new urban sites), watersheds with a large degree

of BMP implementation, and will provide monitoring in areas lacking monitoring to improve future calibration of the CBP model (i.e. Coastal Plain – 3 new sites)

- Increased monitoring coverage in Maryland, New York, Pennsylvania, and Virginia

New combined additional funding for FY2011-2012: $1,938,200 (Table 1 and 2).

**Partnerships that fund the network**

The current network has been funded using a combination of Federal and regional partner funding sources. Since 2004, the EPA, states, and USGS collaborated to fund the network, which include costs for measuring stream flow, collecting water-quality samples, and maintaining the data. In 2010, the total shared cost of the network was approximately $3.7M. This figure is based on a cost per site for the 71 primary sites as $46,000 per year and 17 secondary sites at a cost of $26,000 per year. EPA CBP provided $916,000 (25% of total cost), USGS provides $897,000 in stream-gage monitoring at each site (24% of total cost), the states and other monitoring organizations provide $554,000 in general and special funds (15% of total cost), EPA 106 grants provides $217, 000 (6% of total cost). The remaining 30% of total annual nontidal network monitoring network support is provided by other local sources of funds ($1,100,000) (Figure 4). The proposed additional funding of $2,000,000 will pay for an additional 37 sites.

**Funding expectations of the expanded network**

The new network will include 120 sites including 108 primary sites and 12 secondary sites (Figure 3 and Appendix) for a total cost of around $5.3 million/year maintenance. Table 3 summarizes the total CBP investment by jurisdiction for existing and proposed new sites. These enhancements to the network will allow for better measurement of nutrient and sediment load changes for major sources sectors (with a focus on agricultural and suburban areas), in more local areas, and support re-evaluation of the TMDL and refinement of watershed implementation plans in 2017.

The majority of the implementation of the nontidal network was accomplished by using existing funds from multiple partners. While this fact makes the network less susceptible to budget fluctuations within any particular agency, it presents challenges for the long-term maintenance of the nontidal network. The network is vulnerable to budget shortfalls, in particular cuts to the continuous funding needed for discharge gage operations and salary loss of experienced staff to carry out the monitoring. Therefore, a multi-agency commitment to maintaining the network is necessary to ensure the network can be utilized to its highest potential by resource managers. In order for this network to thrive in its primary goal to assess the status, trends, and loads of nutrients and sediment throughout the watershed, a commitment to maintain funding for this network is necessary as trend and load calculations require consistency in monitoring. First priority for future funding should be to maintain funding and backfill where funding may be lost to ensure continuity in monitoring in the current network.

**Collaborating with additional partners for future expansion of the network**

Future plans for network expansion beyond this proposal include incorporating additional non-traditional partner data into the network to improve the spatial scale of monitoring and local involvement in the watershed-wide network. Programs including city and county monitoring programs and selected citizen monitoring programs will be evaluated for potential incorporation into the nontidal network, including the potential for aligning their monitoring protocols with nontidal network protocols. These additional partner data would be likely used to determine the status of nutrient and sediment contamination in local areas to help target local and

regional watershed restoration and protection activities; trend information will likely be hard to assess at this level without additional CBP funding as the effort for monitoring sites to determine trends is generally a monitoring commitment that is larger than the capacity of many local organizations.

Figure 1. Existing 88 Nontidal Water Quality Monitoring Network Stations

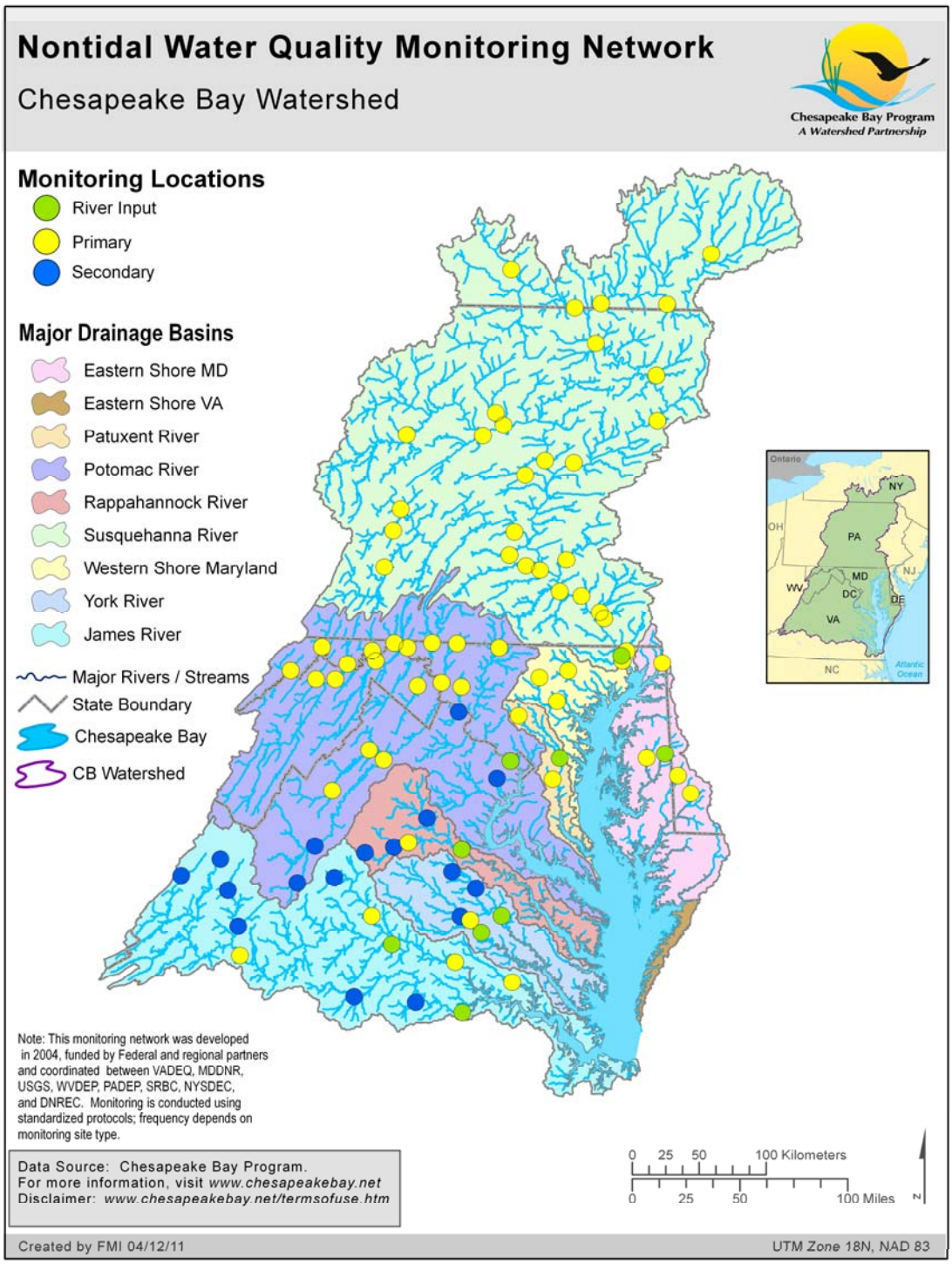

Figure 2. Proposed monitoring stations for FY 11 and FY12 funding, see tables 1 and 2 for more information about each site

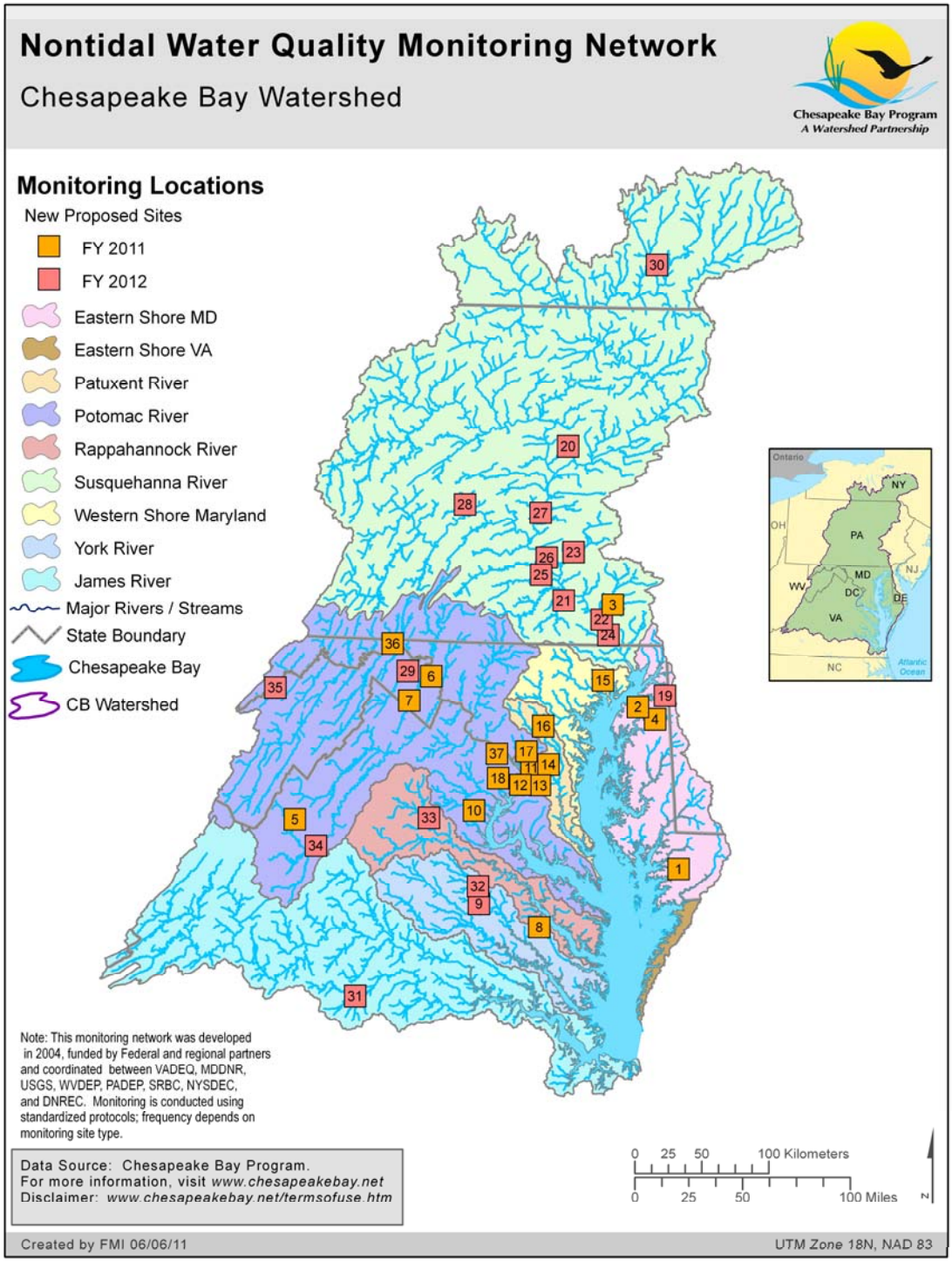

Figure 3. Enhanced 120 Nontidal Water Quality Monitoring Network Stations

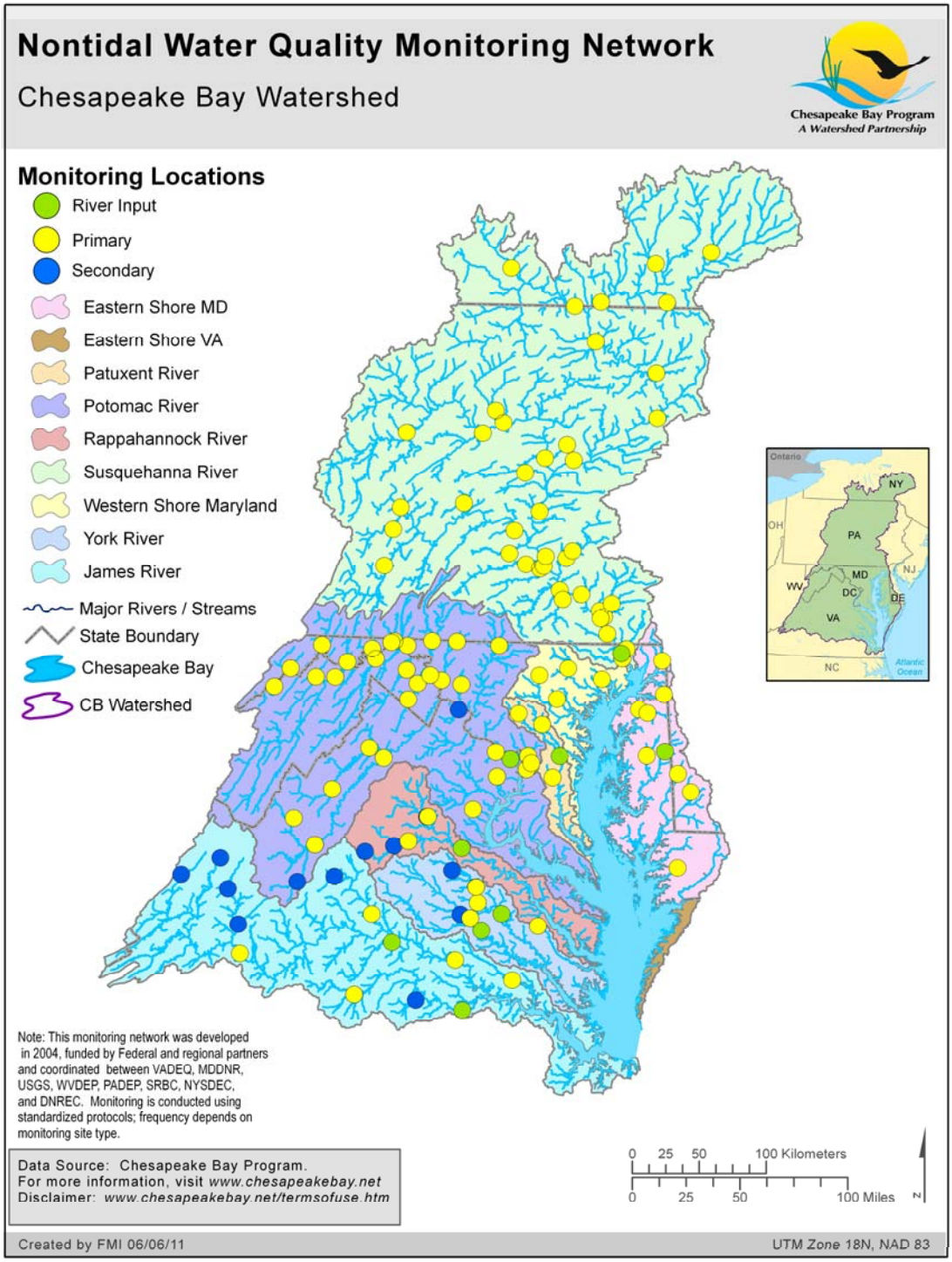

Figure 4. Funding sources for the Nontidal Water Quality Monitoring Network FY 2010

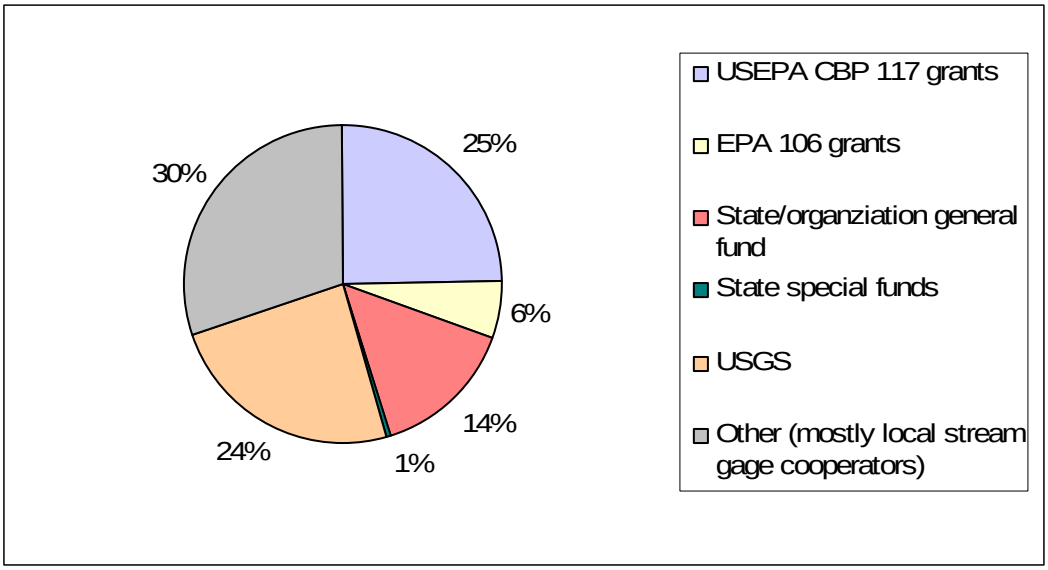

Table 1. Characteristics of 19 proposed new sites for funding in FY11. Sites were given high priority if they were in small watersheds, their predominate land use influence was agricultural or urban, if they were in the coastal plain and if they had ongoing or potential BMP implementation within their watershed

| Site Name | Map Key | Small or Moderately Small Watershed? (<50 square miles) (Y) | Predominate Land use Influence | In the Coastal Plain? (Y) | Ongoing/potential for substantial BMP implementation? (Y) | Monitoring Agency | Gage Construction (Y) | Gage Operation (Y) | Secondary Site? (Y) | FY11 cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Monokin Branch near Princess Anne** | 1 | Y | Ag | Y | | MDDNR | | Y | | 46,000 |
| **Morgan Run (Chester River)** | 2 | Y | Ag | Y | Y | MDDNR | | Y | | 46,000 |
| **Big Spring Run** | 3 | Y | Ag | | | PADEP/USGS | | Y | | 46,000 |
| **Chesterville Branch nr Crumpton** | 4 | Y | Ag | Y | Y | USGS | | Y | | 46,000 |
| **Muddy Creek at Mount Clinton, Va** | 5 | Y | Ag | | Y | VADEQ | | | | 56,100 |
| **Rockymarsh Run / Potomac River** | 6 | Y | Ag | | Y | WVDEP | | Y | | 46,000 |
| **Mill Creek / Opequon Creek** | 7 | Y | Ag | | Y | WVDEP | Y | Y | | 61,000 |
| **SF Quantico Creek nr Independent Hill** | 10 | Y | Forest | | | USGS | | Y | | 50,000 |
| **Dragon Run** | 8 | Y | Forest | Y | Y | VADEQ | | Y | | 48,000 |
| **Warm Springs** | 36 | Y | Forested/Urban | | Y | WVDEP | Y | Y | | 61,000 |
| **Fort Chaplin** | 11 | Y | Urban | Y | Y | DDOE | Y | Y | | 61,000 |
| **Fort Dupont** | 12 | Y | Urban | Y | Y | DDOE | Y | Y | | 61,000 |
| **Fort Stanton** | 13 | Y | Urban | Y | Y | DDOE | Y | Y | | 61,000 |
| **Nash Run** | 14 | Y | Urban | Y | Y | DDOE | Y | Y | | 61,000 |
| **Wheel Creek (Bush River)** | 15 | Y | Urban | | Y | MDDNR | | Y | | 46,000 |
| **Little Patuxent River** | 16 | Y | Urban | | Y | MDDNR | | Y | | 46,000 |
| **Anacostia River - Lower NW Branch** | 17 | Y | Urban | Y | Y | MDDNR | Y | Y | | 61,000 |
| **Accotink Creek near Annondale** | 18 | Y | Urban | | Y | VADEQ | | Y | Y | 36,000 |
| **Difficult Run near Great Falls, Va** | 37 | N is 56 | Urban | | Y | VADEQ | | Y | | 48,000 |
| **Total** | | Y-18 | A-7, F-3, U-9 | Y-9 | Y-16 | | Y-7 | Y-18 | Y-1 | 987,100 |

Table 2. Characteristics of 18 proposed new sites for funding in FY12. Sites were given high priority if they were in small watersheds, their predominate land use influence was agricultural or urban, if they were in the coastal plain and if they had ongoing or potential BMP implementation within their watershed

| Site Name | Map Key | Small or Moderately Small Watershed? (<50 square miles) (Y) | Predominate Land use Influence | Is site in the Coastal Plain? (Y) | Ongoing/potential for substantial BMP implementation? (Y) | Monitoring Agency | Gage Construction (Y) | Gage Operation (Y) | Secondary Site (Y) | FY12 cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sassafras River Watershed** | 19 | | Ag | Y | Y | MDDNR | Y | Y | | 61,000 |
| **Chillisquaque @ Washingtonville** | 20 | | Ag | | Y | PADEP/USGS | Y | Y | | 61,000 |
| **Codorus Ck nr Pleasureville** | 21 | | Ag | | Y | PADEP/USGS | Y | Y | | 61,000 |
| **Pequea Ck at Strasburg** | 22 | | Ag | | Y | PADEP/USGS | Y | Y | | 61,000 |
| **Quittapahilla Ck** | 23 | | Ag | | Y | PADEP/USGS | Y | Y | | 61,000 |
| **Muddy Creek** | 24 | | Ag | | | SRBC | Y | Y | | 61,000 |
| **East Mahantango at Dalmatia** | 27 | | Ag | | | SRBC | | Y | | 46,000 |
| **Kishacoquillas at Reedsville** | 28 | | Ag | | Y | SRBC | | Y | | 46,000 |
| **Tioughnioga at Itaska** | 30 | | Forest | | | SRBC | | Y | | 46,000 |
| **Polecat Creek** | 9 | Y | Forest | Y | Y | VADEQ | Y | Y | | 66,000 |
| **Appomattox River** | 31 | | Forest | | Y | VADEQ | | Y | Y | 58,100 |
| **Mattaponi River** | 32 | | Forest | Y | Y | VADEQ | | Y | Y | 36,000 |
| **Rappahannock River at Remington** | 33 | | Forest | | Y | VADEQ | | | Y | 22,000 |
| **S.F. Shenandoah River** | 34 | | Forest | | Y | VADEQ | | Y | Y | 36,000 |
| **Abrams Creek at Oakmont** | 35 | Y | Forest | | Y | WVDEP | Y | Y | | 61,000 |
| **Back Creek** | 29 | | Forested/some Ag | | | WVDEP | | Y | | 46,000 |
| **Spring Cr nr Harrisburg, PA** | 25 | Y | Urban | | | PADEP/USGS | Y | Y | | 61,000 |
| **Paxton Creek nr Harrisburg, PA** | 26 | Y | Urban with Ag | | | SRBC | Y | Y | | 61,000 |
| **Total** | | Y-4 | A-8, F-8, U-2 | Y-3 | Y-12 | | Y=10 | Y-17 | Y-4 | 951,100 |

Table 3. Summary by jurisdiction of current and proposed CBP nontidal network funding

| Jurisdiction | # Stations in existing network | Current CBP funding (approx. $) | # New stations FY 11 | # New gages FY 11 | Proposed FY11 CBP funding ($) | # New stations FY 12 | # New Gages FY 12 | Proposed FY 12 CBP funding ($) | Monitoring or potential monitoring organization | Total cost to maintain network ($/yr) |
|---|---|---|---|---|---|---|---|---|---|---|
| District of Columbia | 0 | 0 | 4 | 4 | 244,000 | 0 | 0 | 0 | DDOE, ICPRB, USGS | 184,000 |
| Maryland | 18 | 139,589 | 6 | 1 | 291,000 | 1 | 1 | 61,000 | MDDNR, USGS,SRBC | 1,150,000 |
| Pennsylvania | 28 | 372,000 | 1 | 0 | 46,000 | 9 | 7 | 519,000 | PADEP, USGS, SRBC | 1,748,000 |
| New York | 5 | 62,000 | 0 | 0 | 0 | 1 | 0 | 46,000 | SRBC | 276,000 |
| Virginia | 31 | 254,500 | 5 | 0 | 238,100 | 5 | 1 | 218,100 | VADEQ, USGS | 1,416,000 |
| West Virginia | 4 | 80,000 | 3 | 2 | 168,000 | 2 | 1 | 107,000 | WVDEP, USGS, WVDA | 414,000 |
| Delaware | 2 | 8,000 | 0 | 0 | 0 | 0 | 0 | 0 | DNREC | 92,000 |
| Total | 88 | 916,089 | 19 | 7 | 987,100 | 18 | 10 | 951,100 | | 5,280,000 |

**Appendix: Table of enhanced Nontidal Water Quality Network of 120 sites**

| Jurisdiction | Site Type | Site Name/Number | Justification for being in network |
|---|---|---|---|
| DC | Primary | Fort Chaplin | New proposed site to meet needs of TMDL |
| DC | Primary | Fort Dupont | New proposed site to meet needs of TMDL |
| DC | Primary | Fort Stanton | New proposed site to meet needs of TMDL |
| DC | Primary | Nash Run | New proposed site to meet needs of TMDL |
| DE | Primary | 01487000 | Original network site - to cover large spatial area of watershed |
| DE | Primary | 01488500 | Original network site - to cover large spatial area of watershed |
| MD | Primary | Monokin Branch near Princess Anne | New proposed site to meet needs of TMDL |
| MD | Primary | Morgan Run (Chester River) | New proposed site to meet needs of TMDL |
| MD | Primary | Wheel Creek (Bush River) | New proposed site to meet needs of TMDL |
| MD | Primary | Little Patuxent River | New proposed site to meet needs of TMDL |
| MD | Primary | Anacostia River - Lower NW Branch | New proposed site to meet needs of TMDL |
| MD | Primary | Sassafras River Watershed | New proposed site to meet needs of TMDL |
| MD | Primary | Chesterville Branch nr Crumpton | New proposed site to meet needs of TMDL |
| MD | Primary | 01491000 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01491500 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01495000 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01578310 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01578475 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01580520 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01582500 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01586000 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01589300 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01591000 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01594440 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01594526 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01599000 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01601500 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01619500 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01637500 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01639000 | Original network site - to cover large spatial area of watershed |
| MD | Primary | 01646580 | Original network site - to cover large spatial area of watershed |
| NY | Primary | Tioughnioga at Itaska | New proposed site to meet needs of TMDL |

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|---|---|---|---|
| NY | Primary | 01502500 | Original network site - to cover large spatial area of watershed |
| NY | Primary | 01503000 | Original network site - to cover large spatial area of watershed |
| NY | Primary | 01515000 | Original network site - to cover large spatial area of watershed |
| NY | Primary | 01529500 | Original network site - to cover large spatial area of watershed |
| NY | Primary | 01531000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | Big Spring Run | New proposed site to meet needs of TMDL |
| PA | Primary | Chillisquaque @ Washingtonville | New proposed site to meet needs of TMDL |
| PA | Primary | Codorus Ck nr Pleasureville | New proposed site to meet needs of TMDL |
| PA | Primary | Pequea Ck at Strasburg | New proposed site to meet needs of TMDL |
| PA | Primary | Quittapahilla Ck | New proposed site to meet needs of TMDL |
| PA | Primary | Spring Cr nr Harrisburg, PA | New proposed site to meet needs of TMDL |
| PA | Primary | Muddy Creek | New proposed site to meet needs of TMDL |
| PA | Primary | East Mahantango at Dalmatia | New proposed site to meet needs of TMDL |
| PA | Primary | Kishacoquillas at Reedsville | New proposed site to meet needs of TMDL |
| PA | Primary | Paxton Creek nr Harrisburg, PA | New proposed site to meet needs of TMDL |
| PA | Primary | 01531500 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01534000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01536500 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01540500 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01542500 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01548005 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01549700 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01549760 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01553500 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01555000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01556000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01558000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01562000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01567000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01568000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01570000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01571500 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01573560 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01574000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01576000 | Original network site - to cover large spatial area of watershed |

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|---|---|---|---|
| PA | Primary | 01576754 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01576787 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01609000 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01610155 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01613095 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01613525 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01614500 | Original network site - to cover large spatial area of watershed |
| PA | Primary | 01619000 | Original network site - to cover large spatial area of watershed |
| VA | Primary | SF Quantico Creek nr Independent Hill | New proposed site to meet needs of TMDL |
| VA | Primary | Muddy Creek at Mount Clinton, Va | New proposed site to meet needs of TMDL |
| VA | Primary | Dragon Run | New proposed site to meet needs of TMDL |
| VA | Primary | Difficult Run near Great Falls, Va | New proposed site to meet needs of TMDL |
| VA | Primary | Polecat Creek | New proposed site to meet needs of TMDL |
| VA | Primary | 01631000 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 01632900 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 01634000 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 01667500 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 01668000 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 01671020 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 01673000 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 01674500 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 02024752 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 02034000 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 02035000 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 02037500 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 02041650 | Original network site - to cover large spatial area of watershed |
| VA | Primary | 02042500 | Original network site - to cover large spatial area of watershed |
| WV | Primary | Rockymarsh Run / Potomac River | New proposed site to meet needs of TMDL |
| WV | Primary | Mill Creek / Opequon Creek | New proposed site to meet needs of TMDL |
| WV | Primary | Warm Springs | New proposed site to meet needs of TMDL |
| WV | Primary | Abrams Creek at Oakmont | New proposed site to meet needs of TMDL |
| WV | Primary | Back Creek | New proposed site to meet needs of TMDL |
| WV | Primary | 01604500 | Original network site - to cover large spatial area of watershed |

| | | | |
|---|---|---|---|
| WV | Primary | 01608500 | Original network site - to cover large spatial area of watershed |
| WV | Primary | 01611500 | Original network site - to cover large spatial area of watershed |
| WV | Primary | 01616500 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 01628500 | Original network site- upgraded to primary from secondary |
| VA | Secondary | 01654000 | Original network site- upgraded to primary from secondary |
| VA | Secondary | 01664000 | Original network site- upgraded to primary from secondary |
| VA | Secondary | 01674000 | Original network site- upgraded to primary from secondary |
| VA | Secondary | 02039500 | Original network site- upgraded to primary from secondary |
| VA | Secondary | 01626000 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 01638480 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 01665500 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 01666500 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 01671100 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 01673800 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 02011500 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 02015700 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 02020500 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 02024000 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 02031000 | Original network site - to cover large spatial area of watershed |
| VA | Secondary | 02041000 | Original network site - to cover large spatial area of watershed |