DRAFT MANAGEMENT STRATEGY
HEALTHY WATERSHEDS

Estimated Percent Complete: 95%

OUTCOME: 100 percent of state-identified currently healthy waters and watersheds remain healthy.

FACTORS INFLUENCING

- **Information about the status of healthy waters/watersheds**
  - Where are the healthy watersheds?
  - How do their status change over time?
  - Which are most vulnerable to degradation?
  - How effective are our management Interventions?
- **Cumulative action, with a focus on local engagement**
  - Actions include an array of regulatory and non-regulatory tools (anti-degradation, permit programs, easement purchases, education).

GAPS

- Inventory, assessment, and other information on healthy watersheds is often unavailable. The bulk of activity regarding collection and use of watershed condition information has been used to characterize impaired waters for restoration.
- Protective measures vary in their application across the Bay region, and can vary in their effectiveness.
- Widespread assessments of healthy watershed vulnerability to risk(s) are not available.
- Some level of prioritization within agencies/organizations may exist, but details are not clear and information may not be readily accessible to external parties.
- Enhancements are needed for the array of scientific, technical and policy tools to identify/characterize/protect healthy watersheds. Usage of tools is not universal.
- There is often a disconnect between local proponents and supporters of healthy waters and the public and private sector tools that can establish and maintain protective measures. Outreach, awareness building, education will be needed to inform local communities.

MANAGEMENT APPROACHES

1)Tracking— where are healthy watersheds and how are they doing?
- Inventory of Healthy Watersheds
- Assessment Information
- Vulnerability Information
- Prioritization for Protection

2) Local Leadership – strengthen local commitment and capacity to protect their healthy watersheds

3) Federal Leadership—increase communication within the federal family, so that federal programs and agency decision-making are more protective of state-identified healthy watersheds

4) Support state-based efforts—encourage and recognize important activities within states

DRAFT MANAGEMENT STRATEGY

LAND USE METHODS AND METRICS

Estimated Percent Complete: 95%

OUTCOME: Continually improve the knowledge of land conversion and the associated impacts throughout the watershed. By 2016, develop a Chesapeake Bay watershed-wide methodology and local level metrics for characterizing the rate of farmland, forest and wetland conversion, measuring the extent and rate of change in impervious surface coverage and quantifying the potential impacts of land conversion to water quality, healthy watersheds and communities. Launch a public awareness campaign to share this information with citizens, local governments, elected officials and stakeholders.

FACTORS INFLUENCING

- High-resolution land cover and elevation data availability
- High-resolution land cover and elevation data costs
- Sustainability of long-term monitoring
- Methodology for assessing landscape change with high-resolution data with sufficient precision to inform county-level decisions
- Methodology to quantify impacts to communities and the environment
- Agreement on the temporal and spatial scale at which to assess change

GAPS

- Complete or partial land cover information derived from classifying high-resolution imagery is currently available for select counties in the Bay watershed.
- The Management Strategy will require monitoring land change, not just mapping it once. Changes in spectral surface properties over multi-date images can present a challenge when doing high-resolution change analysis.

MANAGEMENT APPROACHES

CBP Partners will coordinate and solicit input on user requirements and technical specifications for this outcome. Potential technical approaches include:

1. Coarse, 30 m-resolution wall-to-wall mapping from Landsat satellite imagery
2. High-resolution (<5m) wall-to-wall mapping from aerial or satellite imagery
3. High-resolution (<5m) stratified random sampling

Local participation will be sought to help identify and describe impacts to communities, to ensure the data are useful for informing local-level decisions and to develop and implement the communication strategy. The Healthy Watersheds GIT, Citizen Advisory Committee, and Local Government Advisory Committee will work with the Land Use Workgroup and Communications Office to develop this communication strategy.

DRAFT MANAGEMENT STRATEGY
LAND USE OPTIONS EVALUATION

Estimated Percent Complete: 95%

OUTCOME: By the end of 2017, with the direct involvement of local governments or their representatives, evaluate policy options, incentives and planning tools that could assist them in continually improving their capacity to reduce the rate of conversion of agricultural lands, forests and wetlands as well as the rate of changing landscapes from more natural lands that soak up pollutants to those that are paved over, hardscaped or otherwise impervious. Strategies should be developed for supporting local governments' and others' efforts in reducing these rates by 2025 and beyond.

FACTORS INFLUENCING

- Completing the evaluation component presents a technical and administrative challenge.
- Ability to engage local governments in conducting the evaluation.
- Reducing land conversion rates presents a political and educational challenge.
- Baseline for local level metrics for characterizing land conversion rates are dependent on the Land Use Methods and Metrics Outcome.
- ***Future*** change overlooked in the face of ***present*** land impacts and water quality related goals (i.e., TMDL).
- Level and type of land conversion reduction policy and implementation efforts is highly varied across the watershed.

GAPS

- Waiting until 2017 to investigate the development of strategies to support local governments' and others' efforts to reduce land conversion rates.
- The MS highlights additional needs outside the scope of this outcome, including additional support needed for
  - "crediting" natural land protection in the bay TMDL
  - Information related to the economic justification for implementation of land use policies related to reducing the rate of land change conversion.
  - Ensuring ongoing support for education as local government representatives change.

MANAGEMENT APPROACHES

- Conduct a comprehensive review/study of existing land use "policy options, incentives and planning tools" currently being implemented at the local/state scale.
- Create an online repository of such examples to serve as a user-friendly knowledge base, including studies and reports of the costs, benefits and effectiveness of such examples.
- Conduct a professional survey of local government and related groups to identify which "policy options, incentives and planning tools" have been most effective at reducing land conversion rates, and to determine additional information and tools needed to achieve a reduction in land conversion rates.

DRAFT MANAGEMENT STRATEGY
CLIMATE RESILIENCY

Estimated Percent Complete: 75%

OUTCOMES

Monitoring and Assessment: Continually monitor and assess the trends and likely impacts of changing climatic and sea level conditions on the Chesapeake Bay ecosystem, including the effectiveness of restoration and protection policies, programs and projects.

Adaptation: Continually pursue, design and construct restoration and protection projects to enhance the resiliency of Bay and aquatic ecosystems from the impacts of coastal erosion, coastal flooding, more intense and more frequent storms and sea level rise.

FACTORS INFLUENCING SUCCESS

- **Science**
  - Lack of sufficient scientific capabilities to fully understand climate change effects and ecosystem responses
  - Data inconsistency and incomparability among regions and sectors within the Chesapeake Bay watershed
  - Development and budgetary challenges of an acceptable long-term monitoring approach
- **Institutional Capacity, Regulatory Constraints, and Stakeholder Response**
  - Lack of understanding or agreement of stakeholders on what it means to be resilient or what constitutes resiliency
  - Ability to incorporate meaningful change into plans and programs
  - Institutional constraints to integrate climate change considerations into Bay restoration efforts
  - Increase collaboration efforts between diverse stakeholders and organizations

GAPS

- **Coordination of Modeling**
  - Missing a coordinated and concerted effort to integrate modeling within the Bay assessments
- **Climate Science**
  - Need continued assessment and analysis, as well as new approaches to fill critical science gaps
  - Develop a comprehensive understanding of current science and management actions relevant to the goals of the Bay program
- **Adaptation**
  - Improve institutional capacity to collaborate data, communications, policy, programs, and implementation
  - Revise or reconsider current plans to anticipate climate-related impacts
  - Link science to implementation of climate resiliency projects and policy
  - Engage stakeholders earlier to discuss implementation and planning
  - Improve assessments based on indicators

MANAGEMENT APPROACHES

Develop a framework for engaging one-on-one with CB Partnership Goal Implementation Teams on climate related management needs through:

1. Monitoring & Assessment

- Define goals and establish baselines
- Develop conceptual monitoring, modeling, and assessment model
- Prioritize climate impacts
- Design monitoring and monitoring plans for climate adaptation assessments and plans
  - Determine whether available data and tools are sufficient
  - Identify necessary forecast projection models
  - Outline an integrated monitoring and assessment agenda
- Assess trends and conduct assessments
- Develop a research agenda
- Reassess priorities and revise goals
- Undertake public, stakeholder and local engagement

2. Adaptation

- Compile and assess current efforts and lessons-learned
- Assess climate impacts and vulnerabilities
- Review and revise conservation, restoration and protection goals and objectives
- Establish adaptation outcome priorities
- Increase the institutional capacity of the Chesapeake Bay Program to prepare for and respond to climate change
- Implement priority adaptation actions
- Track adaptation action effectiveness and ecological response
- Increase local engagement by conducting targeted conversations, fostering discussions between climate change and the Bay, and increasing regional collaboration, education and outreach

DRAFT MANAGEMENT STRATEGY
CITIZEN STEWARDSHIP

Estimated Percent Complete: 50%

OUTCOME: Increase the number and diversity of trained and mobilized citizen volunteers with the knowledge and skills needed to enhance the health of their local watersheds.

FACTORS INFLUENCING

Capacity Factors

- Many existing programs not designed for maximum impact
- Lack of financial and regulatory incentives for effective stewardship programs
- Need additional capacity to recruit and train volunteers and leaders
- Lack ability to measure impact and track progress of stewardship programs
- Lack strategic coordination of the many programs implemented at the local level
- Need region wide stewardship programs to help build a more robust and diverse movement for clean water

External Factors

- Public opinion, perception and attitude about Bay clean up varies and poses both challenges and opportunities
- Lack of Social norms that encourage adoption of helpful individual actions and behaviors
- Need to increase use of existing and expand access to water resources for all citizens
- Existing markets are the major drivers of consumer choices and often create disincentives for stewardship actions

GAPS

- Systematic support and coordination between NGO's and local governments to develop and cooperatively implement effective stormwater outreach programs
- Common measures to evaluate stewardship program success
- Greater understanding of how to develop strategic behavior change programs that are audience oriented
- Creation a behavior change group or case study repository where NGOs can share outcomes of work categorized by specific behaviors

MANAGEMENT APPROACHES

Establish mechanisms to measure impact and track progress of citizen stewardship programs

- The Chesapeake Bay Program will develop a practical and value-added method to track changes in public attitudes, behaviors, and actions related to stewardship and use the results to guide future management strategies.

Provide assistance to help develop and implement programs for maximum impact on citizen stewardship

- Increase program effectiveness to achieve results from citizen stewardship programs targeting individual behaviors.
- Share best practices and successful models of citizen stewardship programs.
- Increase the communications capacity of the Bay community.
- Increase strategic coordination and collaboration among programs at the local level.
- Increase direct engagement of diverse organizations and communities.
- Increase local public access to natural resources.

Increase capacity to expand the number and diversity of citizen volunteers

- Invest in successful volunteer recruitment and engagement programs.
- Expand citizen participation in science and monitoring.

Recruit, Train, and Support more Citizen Leaders and local Champions

- Increase opportunities for training and empowerment of local champions.
- Provide financial investment for local leadership training and education in all States.
- Increase organizational capacity and effectiveness to build citizen leaders.
- Build capacity of organizations to cultivate leaders and build the movement.

DRAFT MANAGEMENT STRATEGY
DIVERSITY

Estimated Percent Complete: 60%

OUTCOME

Identify minority stakeholder groups that are not currently represented in the leadership, decision-making and implementation of conservation and restoration activities and create meaningful opportunities and programs to recruit and engage them in the Partnership's efforts.

FACTORS INFLUENCING

- Lack of effective communication and outreach strategies
- Limited information flow to diverse communities about environmental challenges
- Need to demonstration that addressing these challenges can improve life for diverse communities (e.g. public health, safety, economic, social, recreational impacts and benefits to families)
- Need for more diverse hiring practices across watershed
- Genuine engagement and input – e.g. seat at the decision-making table
- Capacity building to better participate in environmental opportunities (.e.g. timely information on grant opportunities)
- Creating linkages with the values of non-engaged communities – connect with historical and cultural traditions of diverse communities
- Climate Change impacts, especially sea level rise and flooding concerns
- Level of local government engagement and capacity to consider equity in environmental work
- Comprehensive and regionally representative baseline information and tracking processes

GAPS

- Lack of information exchange to include diverse populations (e.g. poor scheduling to exclude working families, lack of multi-lingual outreach efforts, nonstrategic advertising, highly technical and acronym filled messages, lack of outreach to youth)
- Lack of outreach and targeting diverse media sources
- Delayed engagement when policy makers need buy-in
- Lack of multilingual outreach efforts
- Lack of diversity in leadership roles and in Bay Program partnership
- Lack of diverse hiring practices in government and nongovernmental organizations
- Capacity of community groups in diverse communities to get engaged (ability to complete sophisticated grant application processes, small budgets and reliance on volunteers, training and relevant skill sets)
- Lack of awareness of environmental justice issues among most current Bay Program partners
- Few restoration projects and programs funded in diverse and EJ communities
- Lack of tracking tools and baseline
- Need to include diversity objectives in other key management strategies

MANAGEMENT APPROACHES

- **Strategy built around four focus areas: *Communication and Outreach; Employment and Professional Engagement; Environmental Justice; and Tracking and Assessment.***
- <u>Outreach and Communication:</u>
- Making appearances and engaging in one on one relationship building with key members of under-represented communities.
- Explore and implement a variety of communication approaches and vehicles to reach diverse populations
- **Key Potential Activities:**
  - Work with communications workgroup to identify diverse communities for distribution and input on draft management strategy. **(Spring 2015)**
  - Work with communications workgroup and CBP partnership to develop CBP communications strategy that encompasses various outreach approaches to diverse communities in watershed (e.g. workshops, forums, radio, TV, print media, etc.
  - Develop social marketing initiative and campaign to engage diverse populations
  - Create forum of diverse groups to share successes, challenges and available resources
- <u>Employment and Professional Engagement:</u>
- Educate and engage diverse populations and communities to foster interest in and access to environmental careers
- **Key Potential Activities:**
  - Add specific language to environmental literacy strategy to reflect including diverse populations.
  - Add specific language to Public Access Management Strategy targeting a percentage of new public access sites in diverse communities.
  - Each CBP jurisdiction to explore designating diversity engagement coordinator.
  - Each CBP partner (including federal agencies) to evaluate all existing diversity programs. **(Fall 2015)**
  - Each CBP jurisdiction to create internship for individuals from diverse communities.
- **<u>Environmental Justice:</u>**
- Explore how CBP partnership can assist local decision makers in maximizing benefits from restoration planning and siting.
- Improve mechanisms for directing restoration project grant funding to diverse communities (e,g, revised grant guidance, awareness of grant availability, training, etc**)**
- **Key Potential Activities:**
  - EPA, other federal agencies, jurisdiction to review and revise respective grant guidance to target restoration resources to EJ and non-traditional areas.
  - CBP to work with Bay partner funding organizations to assist in awareness and competition in bay wide grants.
  - EPA to provide EJSCREEN and other databases to assist the Bay jurisdictions and federal agencies in targeting resources and determining restoration priorities. **(2015)**
  - Conduct needs assessment to further community driven and participatory studies in diverse communities
- <u>Tracking and Assessment:</u>
- Develop and adopt appropriate assessment and tracking tools and metrics for evaluating the success of the Diversity Management Strategy.
- **Key Potential Activities:**

  - Identify trackable metrics as well as explore qualitative and anecdotal ways of tracking information related to potential actions in the diversity management strategy. Use resources such as **Green 2.0 report**, and data collected at NGO's that currently capture diversity information (TNC, CBT).
  - Gather baseline information from partners in first 6 months
  - Explore the creation of a Diversity Dashboard similar to the one EPA uses to track Partnership efforts.
  - Create satisfaction surveys - Work with EPA and partners to develop questions related to diversity and perceptions of diversity throughout the watershed. This may be an online and paper survey.
  - Track internships leading to employment in organizations.

DRAFT MANAGEMENT STRATEGY

LOCAL LEADERSHIP

OUTCOME: Continually increase the knowledge and capacity of local officials on issues related to water resources and in the implementation of economic and policy incentives that will support local conservation actions.

FACTORS INFLUENCING

- Competing interests for resources (people and money) and attention of local officials.
- Effective messaging and public relations—Ability to accurately measure and clearly communicate positive change in the watershed from a natural resource, economic, and cultural perspective .
- Size, geography and (civic) complexity of the watershed causing different regional needs..
- Community support for protection and restoration activities.
- Wide disparity in level of existing knowledge and capacity among local officials.
- Easy access to actionable and reliable information.
- Political will.
- Consistent and focused state and federal program implementation at the local level.
- An historical lack of focus on conservation and natural resource issues.
- Increased awareness of changing environmental conditions (e.g. climate change and flooding)
- Local culture and societal norms relating to conservation actions.
- Creating a culture of excellence.
- Available opportunities to increase knowledge at all levels of understanding..
- Turnover rates of local elected and appointed officials.

GAPS

- Funding for training to increase capacity and knowledge of local officials.
- Knowledge and assistance on how to access training funding.
- Knowledge about resources and a path for specific communication of natural resource issues.
- Dissemination of knowledge and information between jurisdictional agencies and local officials.
- Consistent and effective training opportunities.
- Lack of knowledge or access to training opportunities (capacity and knowledge).
- No Bay-oriented baseline curriculum for current training efforts.
- Lack of natural resource focus in municipal association trainings.
- Existing organizations, like planning commissions, are not being used to deliver natural resources-based training and information.
- A need to expand training in environmental financing options.
- Sufficient, regionally accessible, consistent, formal peer to peer exchanges (e.g., mayor to mayor, watershed organizations, municipal managers, county farm organizations).
- Expanded peer to peer networking opportunities.
- Inclusion of local nonprofits in education and training of local officials.
- Identification of local champions to mentor and lead less informed but willing neighbors.
- Inter-jurisdictional cooperation within watersheds.
- Identification of incentives, drivers, and linkages/connections (i.e., economic, cultural, emotional, community voice leaders).
- Fully integrated and institutionalized asset management approach in watershed protection.
- Bay-wide natural resources-based certification program for officials and citizens.

MANAGEMENT APPROACHES

- Increase the frequency and consistency of training programs for locally elected officials and citizen stewards.
- Increase opportunities for peer-to-peer networking for local elected officials to enhance engagement and mentoring.
- Expand the availability of online resources.
- Improve knowledge management and transfer across the watershed.
- Identify and improve key knowledge and information sources.
- Establish best practices information for interaction with less engaged municipalities and local audiences..
- Regularly coordinate across related goal implementation teams and workgroups to assure that biennial work plans reflect commitments approaches for transferring desired information and knowledge to local government officials.

DRAFT MANAGEMENT STRATEGY

URBAN TREE CANOPY

Estimated Percent Complete: 95%

OUTCOME: Continually increase urban tree canopy capacity to provide air quality, water quality and habitat benefits throughout the watershed. Expand urban tree canopy by 2,400 acres by 2025.

FACTORS INFLUENCING

- Tree canopy progress is influenced by:
  - State and local policies and ordinances
  - Funding/partnerships
  - Community outreach and buy-in
  - Knowledge and technical capacity
- Achieving a net gain in urban and community tree canopy requires well-rounded investment in:
  - Tree canopy protection
  - Tree planting
  - Tree survival/maintenance over time
  - Assessment/tracking of progress and adaptive management
- Factors that reduce canopy must be accounted for and well managed, e.g.:
  - Development, utility line conflicts
  - Storms and other climate related impacts
  - Pests/diseases (e.g. Emerald Ash Borer)

GAPS

- Tree canopy progress tends to be locally driven, but local funding and staff capacity is very limited in most parts of the watershed.
- Tree canopy/planting is one of the most cost-effective BMPs for achieving multiple goals (water/air/habitat/health/energy) but it is not well integrated into TMDL-WIP, stormwater, and other regulatory programs.
- Tracking systems to assess progress are not yet well-developed, though good tools exist to build upon.

MANAGEMENT APPROACHES

- Provide technical assistance, training, and resources to local governments to enhance tree canopy protection, planting, and maintenance.
- Develop funding partnerships in arenas with most need and opportunity— e.g. schools, civic groups, underserved communities, etc.
- Strengthen state incentive programs and policies where needed to help local governments and partners achieve and track tree canopy goals.
- Work with TMDL-WIP and stormwater programs (federal/state/local) to integrate tree planting as a priority BMP for water quality and other benefits.
- Develop more robust and consistent methods for tracking tree canopy progress through a combination of tree planting BMP data (for TMDL) and periodic canopy assessments with high resolution aerial imagery.