**[TURN ON COMMENTS TO SEE ALL INSTSRUCTIONS (Review Tab > Tracking > Drop-down menu: All Markup)]**

|  |
| --- |
|  |
| [Watershed Name] |
|  |
| COASTAL WATERSHED MANAGEMENT PLAN |
|  |

[YEAR]

**[Insert Cover Image, delete this text box]**

Contributing Partners

[Partner Organization]

[Partner Organization]

[Partner Organization]

Prepared by

[Organization]

Acknowledgements

[Optional: First Last Name, Organization]

[Optional: First Last Name, Organization]

[Optional: First Last Name, Organization]

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# Guide to Nine Minimum Elements

This table serves as a quick reference guide to where the Environmental Protection Agency (EPA) Nine Minimum Elements within this watershed management plan.

|  |  |  |
| --- | --- | --- |
| **EPA Nine Minimum Elements** | | **Location in Plan** |
| **1** | Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions, and any other goals identified in the watershed plan. | [Section #. # Title or short description]  [Section #. # Title or short description]  [Section #. # Title or short description] |
| **2** | An estimate of the load reductions expected from management measures. | [Section #.# Title or short description]  [Section #.# Title or short description]  [Section #.# Title or short description] |
| **3** | A description of the nonpoint source management measures that will need to be implemented to achieve load reductions, and a description of the critical areas in which those measures will be needed to implement this plan. | [Section #.# Title or short description]  [Section #.# Title or short description]  [Section #. # Title or short description] |
| **4** | Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan. | [Section #. # Title or short description]  [Section #. # Title or short description]  [Section #. # Title or short description] |
| **5** | An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented. | [Section #. # Title or short description]  [Section #. # Title or short description]  [Section #. # Title or short description] |
| **6** | Schedule for implementing the nonpoint source management measures identified in this plan that is reasonably expeditious. | [Section #. # Title or short description]  [Section #. # Title or short description]  [Section #. # Title or short description] |
| **7** | A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented. |
| **8** | A set of criteria that can be used to determine whether load reductions are being achieved over time and substantial progress is being made toward attaining water quality standards. | [Section #. # Title or short description]  [Section #. # Title or short description]  [Section #. # Title or short description] |
| **9** | A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the established criteria. | [Section #. # Title or short description]  [Section #. # Title or short description]  [Section #. # Title or short description] |

# Executive Summary

[Provide a clear and concise highlight of the watershed characterization, numeric target goals, and the proposed management recommendations. Aim to maintain a summary that is four pages or less. The executive summary it intended to provide a quick overview of the plan as a whole, without excessive detail. The executive summary should be written after the entire plan has been written.]

[Include the following information at a minimum:

* The purpose for creating this plan
  + (e.g., to reopen shellfishing waters or decrease the number of beach closures)
* Geopolitical location of the watershed
  + State, County, City/Town
  + Political boundaries for regulatory ordinances
* Name and description of the major waterbody
  + Major stream
  + Out flow location
* The partnerships involved
  + Organization names
  + Responsibilities
* Impairment issue(s) and indicator
  + Impairment issues/threats
  + Identified sources of pollution
  + Water quality categorization (state and federal categorization)
* Water quality assessment
  + What is the primary indicator being used to determine impairment
  + Numeric stormwater runoff volume reduction load
  + Ideal indicator count (what is the indicator’s current measured count vs ideal/safe/unimpaired count)
* Summary of implementation recommendations
  + Summary of structural and nonstructural stormwater reduction techniques that are proposed
  + Long term maintenance requirements
  + Overall cost
* Monitoring and assessments to be conducted
  + Summary of milestones
  + Where/How is monitoring data to be collected]
* Present the Primary Goal in tabular format using Table 1

Table 1. The primary goal of the watershed management plan and the objectives.

|  |  |
| --- | --- |
| Primary Goal  [Reduce stormwater runoff volume to restore water quality in WATERSHED NAME….] | |
| **OBJECTIVES** | |
| **1** | Continue existing programs that address water quality impairments in the watershed |
| **2** | Determine appropriate water quality classifications and designated uses where water quality impairment exists |
| **3** | Reduce the transport of bacteria and other pollutants from land to water by reducing the volume of stormwater runoff |
| **4** | Promote/focus stormwater reduction efforts in locations where they yield the greatest and most cost effective stormwater volume reductions |
| **5** | Form and maintain partnerships to carry out the plan |
| **6** | Evaluate success and modify plan based upon results |

# Introduction

[The introduction should provide a project manager a comprehensive overview of the management plan. The following information should be included:

* Introduce the location of the watershed surrounding communities
  + State, County, City/Town
  + Political boundaries for regulatory ordinances (what county(s)/municipalities does the watershed fall under)
* Discuss the vision for the watershed and how this project will improve on that vision (see Chapter 4 of the guidebook for Goals )
* Discuss stormwater runoff issue (see Chapter 1 of the guidebook) ]

# Watershed Description

[Include a short paragraph description of the watershed as whole. Include how many acres the watershed covers]

[INSERT MAP OF WATERSHED]

Figure 1-1. Map of [NAME OF WATERSHED].

## Physical and Natural Features

[Consider describing and including the following information if it is relevant to the watershed, only include information that is applicable to the goals and objectives of the watershed:

* Hydrology (see Chapter 5 of the guidebook)
  + Include map of all hydrologic features (see Chapter 5 of the guidebook)
  + Locations of water monitoring stations, include who manages the stations and how regularly data is collected (see Chapter 5.1 of the guidebook)
  + State watershed or river basins that the project watershed is contained within (see Chapter 4.3 of the guidebook)
  + Name and description of the major waterbody (see Chapter 4 and 5 of the guidebook)
    - Major stream (define the primary stream of the watershed)
    - Outflow location (define where the water from the watershed is flowing to i.e. Cape Fear River, Atlantic Ocean, etc.)
    - 12-Digit HUC (see Chapter 4.3 in the guidebook)
* Aerial Photography (see Chapter 5 of the guidebook)
  + Include map of Baseline year aerial photography with watershed boundary
  + Include map of most current year aerial photography with watershed boundary
* Soils (see Chapter 5 of the guidebook)
  + Include map of Hydrologic Soil Groups
* Any of the following information should be included in this section **if it is applicable** to the watershed. It is recommended that any information that can be represented by maps or tables is presented in these formats and should always have a descriptive paragraph regarding the topic. (see Chapter 5.5 and Appendix F of the guidebook)
  + Cultural resources
  + Floodplain
  + Geomorphology
  + Habitat
  + Invasive species
  + Submerged Aquatic Vegetation
  + Topography
  + Vegetation
  + Wetlands
  + Wildlife]

[INSERT MAP OF hydrologic features with watershed boundary]

Figure 1-2. Hydrology map of [NAME OF WATERSHED].

[INSERT MAP OF Baseline year aerial photography with watershed boundary, see Section 5.3.1 and 5.3.2 of the guidebook]

Figure 1-3. Baseline year [YEAR ####] aerial photography map of [NAME OF WATERSHED].

[INSERT MAP OF current year aerial photography with watershed boundary, see Section 5.3.1 and 5.3.2 of the guidebook]

Figure 1-4. Current year [YEAR ####] map of [NAME OF WATERSHED].

[INSERT MAP OF hydrologic soil group with watershed boundary, see Section 5.3.5 of the guidebook]

Figure 1-5. Hydrologic soil group map of [NAME OF WATERSHED].

## Land Use

[Consider describing and including the following information if it is relevant to the watershed, only include information that is applicable to the goals and objectives of the watershed:

* Geopolitical location of the watershed (see Chapter 4 and 5 of the guidebook)
  + State, County, City/Town
  + Political boundaries for regulatory ordinances (i.e. counties and municipalities within the watershed; ideally supplemented with a map)
  + Relevant jurisdictional authorities
  + Zoning (provide map, give information of what percent of the watershed is developed vs undeveloped, what are the percent coverages for each land use type (i.e. residential, commercial, industry, rural, forested, wetlands, etc.) (see Section 5.3.3 and Section 5.3.4 of the guidebook)
* Past and present uses of the watershed area; such as agriculture, lumber harvest/silviculture, military uses, etc. (see Section 5.4.1, 5.5 and Appendix F of the guidebook)
* Utilizing GIS parcel or building footprint data (if available within your county), determine how many buildings are within the watershed. How many buildings are residential vs commercial. (see Section 5.3.3 and Section 5.3.4 of the guidebook)
* Any of the following information should be included in this section **if it is applicable** to the watershed. It is recommended that any information that can be represented by maps or tables is presented in these formats and should always have a descriptive paragraph regarding the topic. (see Section 5.5 and Appendix F of the guidebook)
  + Agriculture
  + Easements
  + Future expected land use
  + Manmade dams
  + Marinas
  + Navigation channels
  + Ports and harbors
  + Protected Areas
  + Urban development]

[INSERT MAP OF political boundaries with watershed boundary]

Figure 1-6. Political boundaries map of [NAME OF WATERSHED].

[INSERT MAP OF zoning with watershed boundary (see Section 5.3.3 and Section 5.3.4 of the guidebook)]

Figure 1-7. Zoning map of [NAME OF WATERSHED].

## Regulatory

[[*See Chapter 2 of the guidebook.* Discuss all appropriate regulation that *applies directly to the watershed*. There are a number of federal and state regulatory rules and laws that relate to water, coastal zone management, and environmental conservation that may serve as a factor for developing a watershed management plan. The primary regulation that affects all waters is the Clean Water Act. Additional national regulations or programs that may be applicable to a watershed include the Safe Drinking Water Act, the National Estuary Program, Coastal Zone Management Act, North American Wetlands Conservation Act, and the Endangered Species Act. These additional regulations and programs do not necessarily apply to all water bodies or watersheds. Discuss all *directly* *applicable* federal, state and local regulation as it can affect the timeline of projects.]]

[[Discuss directly applicable stormwater rules and land use rules that affect the watershed]]

When implementing projects consideration should be given to North Carolina Coastal Area Management Act (CAMA). Some projects may require CAMA permits, consideration of the should be given when developing a timeline for project completion.

Congress enacted the federal Clean Water Act (CWA) (33 U.S.C. §1251 et seq. (1972)) to establish regulations on water quality standards for waters with a purpose of protecting surface waters for drinking, fishing and recreation. The EPA set water quality standards for many contaminants in surface waters as well as established pollution control programs. The CWA establishes use designations that mandate that waters maintain their designated usage. In North Carolina, the Department of Environmental Quality Division of Water Resources is responsible for delegating water quality designations. When waters do not meet this they are listed on the 303(d) list.

### Combined EPA and N.C. DEQ Guidelines

In North Carolina, the NPS Planning section in the DEQ DWR manages 319 funding program. For proposals to qualify to be reviewed, watershed restoration plans in North Carolina must include the EPA watershed restoration plan nine minimum elements.

Below is a compiled list of criteria that is required by the EPA and N.C. DEQ. All of the criteria listed are addressed within this watershed management plan.

1. Identification of impairment, pollutant, causes and sources of pollution that need to be controlled. Pollution sources that need control measures should include estimates of their presence in the watershed
   1. Include a map of the watershed
   2. Identifies the major stressors and sources of impairment, spatial visualize the information in map form
   3. Identify Point vs. Nonpoint sources
   4. Identify the indicators to be measured
   5. Review existing water quality or biological data
   6. Perform a field assessment, this can be initially conducted at areas of greatest concern.
2. Identify and detail reduction load and the measures necessary to meet water quality standards
   1. Indicate the quantitative reduction load
   2. Prioritize proposed activities/projects and identify critical areas that need management
   3. Describe future and current management measures within the watershed
   4. Document relevant authorities that may have a role in management plan
   5. Management activities should address the indicators
3. Detailed management activities and the expected outcome
   1. Describe what the indicators will be for each management measure
   2. Establish what the expected potential pollutant load reductions by each project will be
4. Identification of technical and financial assistance needed to implement as well as long-term operation and maintenance measures
   1. Estimate amount of technical assistance needed
   2. Estimate amount of financial assistance needed, ideally utilizing a detailed cost list
   3. Identify federal, state, local, and private funds or resources that could potentially assist
5. Education and information plan for the watershed
   1. Clearly identify stakeholders
   2. Programs should have multifaceted involvement from local, state and federal programs and agencies; there should be a range of information and education options available
6. Plan implementation schedule
   1. Identify timeline of implementation of actions with specifics on what entity will accomplish the actions including monitoring
   2. Schedule should address short-, mid- and long-term actions
7. Implementation and tracking of measurable milestones to ensure benchmarks of success are being addressed
   1. Milestones should be measurable and have a clear timeframe on when the milestone should be measured
8. Indicator to measure progress toward meeting watershed goals
   1. Direct measurements (such as bacterial counts) and indirect measurements (such as number of beach closings, photographs, etc.) that can indicate whether substantial progress is being made
   2. Should address how to proceed/modify strategies if interim goals are not being met
9. Monitoring component to evaluate effectiveness of plan
   1. Monitoring should be of the load reduction goals to measure progress towards water quality improvement

## Stakeholders and Partners

[[*See Chapter 3.1, 3.2, 3.3 of the guidebook.* Identify stakeholders and partners involved. Acknowledge their critical roles in the planning and implementation process. Discuss any committees and sub-committees that have been created and their roles.]]

[[Include stakeholder demographic information for purposes of education and outreach discussed in later chapters: population information, economics, job (fishing/shellfishing community, business, tourism community, etc.), languages, age, etc. This information can readily be found utilizing U.S. Census Bureau data or county demographic information. Knowing this information will help your environmental educators design programs that appropriately address those who live in your watershed.]]

# Watershed Conditions

[This plan seeks to address water quality through the management of stormwater runoff. Summarize how this relates to the watershed]

## Water Quality

[Consider describing and including the following information if it is relevant to the watershed, only include information that is applicable to the goals and objectives of the watershed:

* Designated and desired uses (see Chapter 2 of the guidebook)
* 1-year, 24-hour storm model depth frequency in inches (see Chapter 5.3.6 in the guidebook)
* Federal and state water quality designations; if available represent this with a map of the watershed and the water quality designations (see Chapter 2 and Section 5.1)
  + 303(d) listing
  + 305(b) Report summary
  + Federal water quality classification (Category 1-5)
  + State water quality classification
  + Impairment statuses
* Any additional water designations or categorizations: (see Chapter 2 and Section 5.1 and Table 5-3 of the guidebook)
  + Aquatic life habitat
  + Recreational (number of closures or advisories per year, etc.)
  + Shellfishing use
  + Water supply
* TMDL summary (if available) (see Chapter 2 and Section 5.1)
* Shellfish Sanitation reports (if available) (see Chapter 2, 5.3.1 and Table 5-3 of the guidebook)
* Water monitoring findings (see Section 5.1 and Table 5-3 of the guidebook)
  + Chemical, biological and/or nutrient findings (historic and present)
  + What organization has/is conducting the monitoring
  + Frequency of monitoring
* Additional water quality issues: (see Section 5.1 and Table 5-3 of the guidebook)
  + Erosion
  + Flooding
  + Sedimentation]

## Source Assessment

[*See Chapter 5.4 in the guidebook.* The primary source being addressed through this management plan will be stormwater runoff, which carries pollutants. That being said, it is important to recognize sources of pollution and to consider the effects of point and nonpoint source pollution on the watershed and how stormwater runoff could transport these pollutants. Summarize how these relate to the watershed.]

### Nonpoint Source Pollution

[Consider describing and including the following information if it is relevant to the watershed, only include sources that are present in the watershed: (see Section 5.4.2 and Table 5-3 of the guidebook)

* [Agriculture
* Construction
* Septic systems
* Silviculture
* Stormwater Runoff
  + Fecal coliform
  + Nutrient from fertilizer
  + Pesticides
  + Sedimentation
* Wildlife]

### Point Sources

[Consider describing and including the following information if it is relevant to the watershed, only include sources that are present in the watershed: (see Section 5.4.2 and Table 5-3 of the guidebook)

* [NPDES permitted facilities (provide map with watershed boundary, if possible)
* CAFO permits (Concentrated animal feeding operation. The NPDES program regulates the discharge of pollutants from point sources to waters of the U.S. CAFOs are point sources, as defined by the [CWA [Section 502(14)] (PDF)](http://www.gpo.gov/fdsys/pkg/USCODE-2013-title33/pdf/USCODE-2013-title33-chap26-subchapV-sec1362.pdf)) (provide map with watershed boundary, if possible)
* Phase I and II Stormwater Permits (provide map with watershed boundary, if possible)
* Wastewater Treatment Plants (provide map with watershed boundary, if possible)]

### Additional Sources

[Consider describing and including the following information if it is relevant to the watershed, only include sources that are present in the watershed: (see Section 5.4.2, utilize EPA [Envirofacts](http://www3.epa.gov/enviro/) and state waste management agency databases [Section 5.4.2.1] of the guidebook)

* [Brown Fields
* CERCLA Sites
* Mining
* RCRA sites
* Underground Storage Tanks
* Other hazardous pollutant sources]

# Runoff Volume Reduction

## Volume Reduction Methodology

Coastal areas have undergone significant change as land use practices have intensified through the increase in agriculture, forestry and development. Prior to human alteration, most rainwater was absorbed into the ground, evaporated or used by vegetation. Specifically, when rainwater is absorbed through the ground, bacteria and other pollutants are removed through percolation. Conventional land use practices circumvent natural hydrologic processes. Stormwater runoff has increased along coastal shorelines as natural, vegetated environments are been developed, increasing the amount of impervious surface. Rainwater is transported rapidly over impervious surfaces through connected conveyance systems, including ditches, pipes, parking lots, and open grassy areas like yards that circumventing natural hydrologic processes. This excess surface water from a rain event is known as stormwater. The result is that during and after storm events, rainwater passes quickly over the landscape collecting bacteria, nutrients, chemical and physical pollution before flowing directly into coastal waters. Polluted water bodies negatively impact the environment, human health and coastal fishing and tourism industries. Restoration and management techniques that rely on stormwater reduction volume and that mimic or restore natural hydrology can reduce stormwater and pollutant loads.

Intensive land uses overwhelm the effectiveness of conventional stormwater treatment systems. Conventional methods rely on peak flow storage but do not mitigate pollution and cannot keep up with increased pressure from usage. As impervious surfaces and stormwater runoff increase, hydrology is altered and can lead to an increase in sedimentation and erosion, ecosystem degradation and loss, loss of aquatic biodiversity, degradation of water quality, and increased flooding.

Rather than focusing on reducing sources of contamination or attempting to treat and remove bacteria and other pollutants from stormwater runoff, *the management techniques used focus on reducing the overall volume of stormwater runoff in order to limit the conveyance from the land into coastal waters.* Low-impact development (LID) stormwater reduction practices can achieve this goal by replicating the natural hydrology and increasing infiltration of water into soils. LID practices are a form of land planning and engineering that primarily focuses on mimicking natural hydrology of the area to limit stormwater runoff. For already developed locations stormwater reduction techniques can reduce the amount of stormwater entering waterways. The result of implementing stormwater reduction practices is that less bacteria and pollutants are transported off the land and into water systems.

Restoration of pre-development, natural hydrology leads to less bacteria and other pollutants in coastal waterways from discharges from the landscape after rainfall. Bacteria is affected by the following factors: the natural mortality of fecal coliform and enterococcus bacteria, the prevention of bacteria and pollutants from entering waterbodies and the reduction in the velocity of waters traveling off the landscape resulting from lower flows. Infiltration of rainfall into the ground serves as an extremely effective filtration system of bacteria and pollutants. Additionally, once bacteria enter the landscape they are subject to higher rates of mortality due to bombardment by ultraviolet radiation from sunlight. By reducing the flow velocity of stormwater, the dissemination of bacteria and other pollutants downstream into shellfishing and swimming waters will be reduced. Utilizing this guidebook to aid in the development of a coastal watershed management plan can assist in the overall reduction of stormwater runoff, in turn reduce pollutants that enter coastal waterways.

## Runoff Reduction Load Calculations

[*See Section 4.2, Chapter 6 in the guidebook.* This section should address the following: provide the numerical value of the stormwater runoff volume for the baseline year, most recent year estimated and the reduction goal. Discuss the water quality indicator parameters (fecal coliform count), comparing numerical before and after measurements of the water quality indicator parameter or pollutant loads (if TMDL has been conducted) that is appropriate for the watershed, until baseline year levels or non-impaired levels are reached.

Identify the amount of stormwater runoff volume that was calculated.]

Table 3-1. Identifying and linking concerns, causes and indicators.

|  |  |  |
| --- | --- | --- |
| **Issue** | **Source of Issue** | **Quantify Issue**  **(Indicators)** |
| **[Example: Not suitable for shellfishing or swimming]** | [Bacteria from stormwater runoff] | [Fecal coliform and enterococci levels, shellfish and beach closure data, waterbody classifications] |
| **[Example: Eroding banks]** | [High Peak Flow due to stormwater from impervious surfaces] | [Hydrographs, water velocity] |
| **[Example: Sediment in water]** | [Sediments from stormwater runoff] | [Turbidity, TSS] |

Table 3-2. Summary of the total area of each soil type based on land use for the baseline year of [YEAR ####], based on geospatial analysis.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Soil Type** | **Land Use** | **Total Area** | **Soil Type** | **Land Use** | **Total Area** |
| **A** | R Open |  | A | C Open |  |
| **A** | R Impervious |  | A | C Impervious |  |
| **B** | R Open |  | B | C Open |  |
| **B** | R Impervious |  | B | C Impervious |  |
| **C** | R Open |  | C | C Open |  |
| **C** | R Impervious |  | C | C Impervious |  |
| **D** | R Open |  | D | C Open |  |
| **D** | R Impervious |  | D | C Impervious |  |

Table 3-3. Summary of the total area of each soil type based on land use for the year of [YEAR ####], based on geospatial analysis.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Soil Type** | **Land Use** | **Total Area** | **Soil Type** | **Land Use** | **Total Area** |
| **A** | R Open |  | A | C Open |  |
| **A** | R Impervious |  | A | C Impervious |  |
| **B** | R Open |  | B | C Open |  |
| **B** | R Impervious |  | B | C Impervious |  |
| **C** | R Open |  | C | C Open |  |
| **C** | R Impervious |  | C | C Impervious |  |
| **D** | R Open |  | D | C Open |  |
| **D** | R Impervious |  | D | C Impervious |  |

Table 3-3. Summary of the total area of each soil type based on land use for the year of [YEAR ####], based on geospatial analysis.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Soil Type** | **Land Use** | **Total Area** | **Soil Type** | **Land Use** | **Total Area** |
| **A** | R Open |  | A | C Open |  |
| **A** | R Impervious |  | A | C Impervious |  |
| **B** | R Open |  | B | C Open |  |
| **B** | R Impervious |  | B | C Impervious |  |
| **C** | R Open |  | C | C Open |  |
| **C** | R Impervious |  | C | C Impervious |  |
| **D** | R Open |  | D | C Open |  |
| **D** | R Impervious |  | D | C Impervious |  |

Table 3-4. Summary of the total runoff volume reduction goals.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Runoff (acre-feet)** | **Reduction Goals** | | |
| **Acre-feet** | **Cubic Feet** | **Gallons** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

## Calculation Methodology

The process of calculating stormwater runoff volume reduction goal has been standardized utilizing instructions developed by North Carolina Coastal Federation, a non-profit organization dedicated to preserving and protecting North Carolina’s coast, and WithersRavenel, a civil and environmental engineering firm. Utilizing aerial orthoimagery of the baseline year (or the earliest available aerial imagery of the watershed), land characterization was conducted by delineating parcel information, zoning data (commercial, residential) and soil characteristics (HSG). The delineated land use parcels were then analyzed to estimate the average percent impervious coverage. Summations were calculated of overall percent coverage based on land use and soil. From this information, the runoff curve number was calculated then runoff depth was calculated for the 1-year, 24-hour rainfall event using formulas developed by the USDA NRCS. The resulting value is then multiplied by the area of the watershed, which will give the total stormwater runoff volume anticipated in response to the prescribed depth of rainfall over a 24-hour period. The volume difference between the baseline year and the analyzed year was calculated to determine the estimated volume of stormwater runoff that needed to be reduced to result in a watershed that responded to rainfall in a manner that mimics the baseline year.

# Goals

[*See Chapter 4 in the guidebook.* The primary goal is to reduce stormwater runoff volume there by reducing the indicator in order to restore water quality. If additionally, goals are identified that are unique to the watershed they should be discussed in this section]

## Primary Goal

[*See Section 4.1 in the guidebook.* The primary goal is to reduce stormwater runoff volume there by reducing the indicator in order to restore water quality. Describe in detail the goal and how the objective support this goal]

Table 4-1. The primary goal of the watershed management plan and the objectives.

|  |  |
| --- | --- |
| Primary Goal  [Reduce stormwater runoff volume to restore water quality….] | |
| **OBJECTIVES** | |
| **1** | Continue existing programs that address water quality impairments in the watershed |
| **2** | Determine appropriate water quality classifications and designated uses where water quality impairment exists |
| **3** | Reduce the transport of bacteria and other pollutants from land to water by reducing the volume of stormwater runoff |
| **4** | Promote/focus stormwater reduction efforts in locations where they yield the greatest and most cost effective stormwater volume reductions |
| **5** | Form and maintain partnerships to carry out the plan |
| **6** | Evaluate success and modify plan based upon results |

### Objective 1

[[*See Section 4.1 in the guidebook.* This plan serves to augment existing strategies to reduce stormwater runoff and improve coastal water quality. Existing strategies include programs aimed at preventing further degradation of water quality and engage residents in water quality protection and restoration efforts. Such programs should continue with existing program budgets. ]]

|  |  |  |  |
| --- | --- | --- | --- |
| Objective 1. Continue existing programs that address water quality impairments in the watershed | | | |
| **Action #** | **Specific Action** | **Timeline** | **Partners** |
| **1-1** | [Implement and enforce existing stormwater requirements for new development and redevelopment] | [Ongoing] | [] |
| **1-2** | [Continue to promote stormwater reduction designs] | [Ongoing] | [] |
| **1-3** | [Continue to cooperate with CCAP] | [Ongoing] | [] |
| **1-4** | [Maintain existing educational programs] | [Ongoing] | [] |
| **1-5** | [Reflect plan in other Town plans, regulation and management strategies] | [As plans are updated] | [] |
| **1-6** | [Continue education and code enforcement programs that reduce and eliminate sources of bacteria and pathogens related to human and pet wastes] | [Ongoing] | [] |
| **1-7** | [Continue to support the community’s local plan, which includes a water quality protection component. The County is dedicated to assisting local communities in developing and implementing water quality enhancement projects. ] | [Ongoing] | [] |

### Objective 2

[[*See Section 4.1 in the guidebook.* Monitoring of water quality that has been closed to shellfish harvest is limited, and not adequate to determine trends in water quality. Monitoring needs to be undertaken upstream and analyzed to better determine water quality condition improvement, and to evaluate appropriateness of existing water quality classifications and designated uses. ]]

***Actions***

|  |  |  |  |
| --- | --- | --- | --- |
| Objective 2. Determine Appropriate Water Quality Classifications and Designated Uses Where Water Quality Impairment Exists | | | |
| **Action #** | **Specific Action** | **Timeline** | **Partners** |
| **2-1** | [Continue to utilize and rely on Shellfish Sanitation monthly monitoring data from station] | [Ongoing] | [] |
| **2-2** | [As water quality improvement projects are applied monitor changes in station readings in order to determine when to reclassify from Conditional Approved-Closed to Open] | [Ongoing based on monitoring results] | [] |
| **2-3** | [Partner with Shellfish Sanitation to devise a recommended timeframe of if and when a new monitoring station can be installed upstream ] | [Year 2 based upon preliminary monitoring] | [] |
| **2-4** | [Partner with local academia to perform additional monitoring program ] | [Ongoing] | [] |

### Objective 3

[[*See Section 4.1 in the guidebook.* The volume of stormwater runoff being transported over land to waterways needs to be reduced to restore water quality. The objective of the plan is to reduce the volume of stormwater generated and conveyed from the land uses to levels that occurred prior to the baseline year.]]

***Actions***

|  |  |  |  |
| --- | --- | --- | --- |
| Objective 3 Reduce the transport of bacteria from land to water by reducing the volume of stormwater runoff | | | |
| **Action #** | **Specific Action** | **Timeline** | **Partners** |
| **3-1** | [Secure and budget funds for retrofits in the watershed and determine volume that can be reduced with funds ] | [Year 1] | [] |
| **3-2** | [Install stormwater reduction projects] | [Within first 5 years] | [] |
| **3-3** | [Incorporate additional measure to reduce pollutant indicator] | [Within first 5 years] | [] |
| **3-4** | [Incorporate stormwater reduction regulations into town planning] | [Within first 5 years] | [] |
| **3-5** | [Track actual reductions by each project using calculation and project measurement tools] | [Annually once projects are installed] | [] |

### Objective 4

It will only be possible to obtain significant reduction in the volume of stormwater runoff if strategic decisions are made about how to achieve the most benefit for the staff and resources used.

***Actions***

|  |  |  |  |
| --- | --- | --- | --- |
| Objective 4. Promote/focus stormwater reduction efforts in locations where they yield the greatest and most cost effective stormwater volume reductions | | | |
| **Action #** | **Specific Action** | **Timeline** | **Partners** |
| **4-1** | [Promote use of GIS web based retrofit Atlas] | [Annually] | [] |
| **4-2** | [Investigate cost effective methods of working with landowners to disconnect impervious surfaces] | [Year 1 and 2 ] | [] |
| **4-3** | [Promote stormwater retrofits within private development] | [Annually] | [] |
| **4-4** | [Promote tree planting and retention] | [Annually] | [] |
| **4-5** | [Promote stormwater reduction measures on Town streets in future capital improvement projects] | [Dependent on Capital Improvement schedule] | [] |
| **4-6** | [Pursue strategy with Department of Transportation to incorporate retrofits into highway upgrades] | [Based upon project schedules] | [] |
| **4-7** | [Promote stormwater retrofits in future publicly funded maintenance or redevelopment of Town owned buildings, parks, parking lots and drainage systems] | [Based upon project schedules] | [] |
| **4-8** | [Promote and assist with stormwater retrofits at Elementary School] | [Year 1] | [] |
| **4-9** | [Promote and assist with stormwater retrofits at Public library] | [Year 1] | [] |
| **4-11** | [Evaluate existing stormwater ponds on public and private properties for potential volume] reductions enhancements, and if feasible, retrofit them to achieve volume reductions] | [Years 3 - 5 ] | [] |

### Objective 5

Accomplishing the actions called for in this plan require partnerships with state and local government agencies, non-profit organizations, universities, houses of worship, landowners and residents.

***Actions***

|  |  |  |  |
| --- | --- | --- | --- |
| Objective 5. Form and maintain partnerships to carry out the plan | | | |
| **Action #** | **Specific Action** | **Timeline** | **Partners** |
| **5-1** | [Work with partners to educate stakeholders] | [Years 1 – 5] | [] |
| **5-2** | [Work with government agencies and NGOs to secure grants for retrofits and other programs] | [Years 1 – 5] | [] |
| **5-3** | [Provide strategies and policies for the Town and County departments to carry out plan by incorporating runoff reduction strategies] | [Years 1 – 5] | [] |
| **5-4** | [Promote use of atlas among key Town and County departments in their routine business] | [Years 1 – 5] | [] |
| **5-5** | [Work with partners to establish long-term monitoring program] | [Years 1] | [] |

### Objective 6

Progress made in achieving water quality improvements will be measured. This plan will be adapted as necessary based upon the results of this monitoring.

***Actions***

|  |  |  |  |
| --- | --- | --- | --- |
| Objective 6. Evaluate success and modify plan based upon results | | | |
| Action # | Specific Action | Timeline | Partners |
| **6-1** | [Use atlas accounting system to document and track progress toward watershed goals.] | [Years 1 – 5] | [] |
| **6-2** | [Work with Shellfish Sanitation and local academia to monitor and track changes] | [Years 1 – 5] | [] |
| **6-3** | [Conduct annual and five-year assessment of plan’s success and modify plan as needed] | [Annually] | [] |
| **6-4** | [Identify which management measures are successful in reducing the among of stormwater transported to surface waters based upon physical factors, institutional contains, cost effectiveness, and other factors that influence their feasibility and efficacy. ] | [Years 1-5] | [] |
| **6-5** | [Calculate intermediate stormwater runoff reduction goals with additional aerial imagery and data] | [Year 1] | [] |

## Education and Outreach Goals

[*See Section 3.4.1 in the guidebook.* Discuss the education and outreach goals of the watershed management plan in detail here.]

The primary purpose of conducting education and outreach within the watershed is to expand and improve environmental literacy to ensure that the community maintains a vested interested in the protection and improvement of the watershed as stakeholders. Education and outreach should enhance public understanding and the outreach messages, which relate coastal watersheds to stormwater runoff. Tailor messages in ways that clearly represent how reducing runoff volumes will benefit target audiences while tying in overarching goals and to communicate volume reduction.

Table 4-3. The education and outreach goals of the watershed management plan and the objectives.

|  |  |
| --- | --- |
| **Education and Outreach Goal** | |
| **[Goal: Enhance stakeholder understanding of the issue of stormwater and their individual and community responsibilities to the watershed]** | |
| Objective 1 | [Develop and implement education and outreach plan for the following primary stakeholder groups: residents, business owners and students] |
| Objective 2 | [Encourage early and continued stakeholder involvement in selecting, designing and implementing stormwater reduction techniques to be put into practice] |

# Management Strategies

[*See Chapter 7 and 8 in the guidebook.* Utilizing stormwater reduction techniques will reduce stormwater runoff. The *Runoff Reduction Scenario Tool* calculates what strategies would be appropriate and how many would need to be applied to achieve appropriate runoff reduction. Summarize here.]

[Conventional management methods rely on peak flow storage and the mitigation of on-site flooding by removing stormwater from the site as quickly as possible. In this approach, stormwater is quickly moved through curb and gutter systems, often over impervious surfaces, where the untreated runoff is conveyed to the nearest receiving water. This approach is effective at deterring on-site flooding but the downstream effects result in an increase in the magnitude and frequency of flooding. Conventional efforts to manage runoff throughout the coast have failed to prevent stormwater runoff pollution; particularly from increased bacterial pollution, which causes contamination of shellfish and swimming waters.]

## Volume Reduction Measures

[*See Chapter 7 and Section 8.1 in the guidebook.* Discuss all proposed volume reduction measures]

Table 5-1. List of Proposed Volume Reduction Measures for Public Spaces

|  |  |  |
| --- | --- | --- |
| **Volume Reduction Measure** | **Number of Retrofits** | **Lifespan (years)** |
| [Install downspout retrofit at Library, Police Station, Elementary and Town Hall with signs] | [20] | [50] |
| [Install raingarden at Library, Town Hall and Elementary with signs] | [#] | [#] |
| [Replace parking lot with Permeable pavement at Library and Town Hall and Police station] | [#] | [#] |
| [Remove curb in Police Station parking lot and replant with native garden or rain garden] | [#] | [#] |
| [Shade tree planting along HWY ] | [#] | [#] |
| [Shade tree planting along Main Street] | [#] | [#] |
| [Install rock sills along HWY ] | [#] | [#] |
| [Install native plants at Town welcoming signs] | [#] | [#] |
| [Installation of living shorelines projects at or near stormwater runoff outflows] | [#] | [#] |

## Other Reduction Measures

[*See Section 7.3 in the guidebook.* Discuss any additional measures that may aid in preventing or reducing stormwater runoff or reduce pollutants from entering the watershed. For example, any proposed regulatory changes, installation of pet waste stations, street sweeping, and so on.]

## Present Controls

[Discuss all stormwater runoff controls currently in place within the watershed (if applicable). Elaborate on any pre-existing plans or management programs. This is an integral component to developing a comprehensive watershed management plan and should not be overlooked.]

## Education and Outreach Program

[*See Section 3.4.1 in the guidebook.* Discuss a basic proposed education and outreach program]

[ Remember, an education and outreach plan should include the following elements:

* Enhance public understanding of the project.
* Encourage early and continued involvement in selecting, designing, and implementing nonpoint source management measures to be put into practice
* To enhance public understanding, create outreach messages, which relate coastal watersheds to stormwater runoff. Tailor messages in ways that clearly represent how reducing runoff volumes will benefit target audiences while tying in overarching goals and to communicate volume reduction.
* To encourage involvement, provide messages that highlight simple ways others can join project efforts.]

[When developing an education and outreach program, follow these six steps:

1. Define outreach goals;
2. Identify and analyze the target audiences;
3. Create the messages for each audience;
4. Package the messages for various audiences;
5. Distribute the messages;
6. Evaluate the Information/Education program.]

[The details of each step should be discussed within the plan. Specifically, clarify the proposed target audience, summarize the message and the method of distributing (i.e. classes, pamphlets, etc.) the material]

# Implementation Program

[*See Chapter 8 in the guidebook.* Summarize the proposed implementation program schedule, monitoring and milestones that will support the application of the stormwater reduction techniques.]

[The following discusses the proposed implementation schedule of projects, milestones and monitoring work to occur. Table 6-1 is an overview of the general implementation schedule describing the actions that should be taken over the course of the next ## years. ]

Table 6-1. Overview of general Implementation Schedule.

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **Partner** | **Time** | |
| [Meet with education and outreach partners to support programs that are already in place and to determine best methods to incorporate stormwater education within preexisting programs ] | [] | | [Year 1] |
| [Review Town’s current planning, zoning, new development and land management strategies and regulations to maximize stormwater reduction methodology] | [] | | [Year #] |
| [Seek advice from Shellfish Sanitation on when to submit request to Shellfish Sanitation to reactivate Station ##] | [] | | [Year #] |
| [Develop comprehensive education lesson curriculum collaborating with Elementary School teachers] | [] | | [Year #] |
| [Develop comprehensive education lesson curriculum to be presented to residents at meetings ] | [] | | [Year #] |
| [Develop comprehensive education lesson curriculum to be presented to businesses at meetings] | [] | | [Year #] |
| [Seek monitoring program development with local academia. Develop program then incorporate as addendum to this Plan] | [] | | [Years #-#] |
| [Seek and budget funds for retrofits in Watershed. ] | [] | | [Years #-#] |
| [Investigate additional cost effect methods of working with landowners to disconnect impervious surfaces, beyond what is currently outlined within this plan. ] | [] | | [Years #-#] |
| [Incorporate stormwater reduction Projects within public areas] | [] | | [Year #] |
| [Evaluate stakeholder attitude towards watershed (see Table 6-4)] | [] | | [Year #, #, #, #] |
| [Mid-course Evaluation. Update the Watershed Management Plan with Addendums (see Table 6-4) ] | [] | | [Year #] |
| [Education and Outreach program evaluation (see Table 6-4)] | [] | | [Year #] |
| [Publish quick report updating stakeholders on watershed (see Table 6-4). ] | [] | | [Year #] |
| [Promote stormwater reduction retrofits within private developments] | [] | | [Year #] |
| [Education and Outreach annual meetings with Residents] | [] | | [Year #] |
| [Education and Outreach annual meetings with Businesses ] | [] | | [Year #] |
| [Annual review of Milestones and Evaluation to determine whether plan remains on track. Implement further evaluation to get back on track if necessary (see Table 6.4)] | [] | | [Year #] |
| [Install stormwater reduction structural projects in public areas (See Section 6.1)] | [] | | [Year #] |
| [Renew plan. Update and write updated Watershed Management Plan. Additional funding should be sought during this time to support additional 10 years.] | [] | | [Year #] |
| [Final Assessment. Review entire plan and implementation successes and failures, lessons learned and how future plans can improve] | [] | | [Year #] |

## Project Implementation Schedule

[[*See Section 8.6 in the guidebook.* The following is the suggested stormwater reduction techniques projects and education implementation projects with the implementation schedule and projected costs of each (Table 6-2). The estimated cost does not incorporate staff time of partners involved or volunteer time and strictly considers cost of materials and professional labor to install projects. Estimate Cost reflect total cost to install or execute all components of the Action and Indicator (it does not reflect each individual installation but the Action as a whole). The Maintenance Schedule column of Table 6-2 should be taken into consideration as part of the technical considerations of the plan.]]

Table 6-2. Project Implementation schedule matrix table format.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Action** | **Partner** | **Time** |  | **Maintenance Schedule** | **Estimate Cost** | **Indicator** |
| [Install stormwater reduction signs at all public docks and parks ] |  | [Year 1] |  | [Annually assess of signage, incorporate with regular landscape maintenance schedule] | [$5,000] | [# of 10 signs installed] |
| [Printing and mailing of *Smart Yard* to residents] |  | [Year #] |  | [Annually provide additional prints to Public buildings] | [$####] | [# of ### residents mailed] |
| [Install downspout retrofit at Library, Police Station, Elementary and Town Hall with signs] |  | [Year #] |  | [Annually, incorporate with regular building maintenance schedule] | [$####] | [# of # retrofits; # of # signs] |
| [Install raingarden at Library, Town Hall and Elementary with signs] |  | [Year #] |  | [Annually, incorporate with regular landscape maintenance schedule] | [$####] | [# of # rain garden and signs] |
| [Replace parking lot with Permeable pavement at Library and Town Hall and Police station] |  | [Year #] |  | [Annually, incorporate with regular building maintenance schedule] | [$####] | [# of # parking lots installed and signs] |
| [Remove curb in Police Station parking lot and replant with native garden or rain garden] |  | [Year #] |  | [Annually, incorporate with regular landscape maintenance] | [$####] | [# of # gardens] |
| [Shade tree planting along HWY ] |  | [Year #] |  | [Monthly, incorporate with regular landscape maintenance] | [$####] | [# of ## trees planted] |
| [Shade tree planting along Main Street] |  | [Year #] |  | [Monthly, incorporate with regular landscape maintenance] | [$####] | [# of ## trees planted] |
| [Install rock sills along HWY ] |  | [Year #] |  | [Annually, incorporate with regular landscape maintenance] | [$####] | [# of ## sills installed] |
| [Elementary lesson plan curriculum materials for demonstration, handouts and visual aids] |  | [Year #] |  | [Annually, review how to improve lessons] | [$####] | [# of ##lessons] |
| [Install animal waste station receptacles at all parks and docks with signs] |  | [Year #] |  | [Monthly, incorporate bag replacement with regular landscape maintenance] | [$####] | [# of ## pet waste stations] |
| [Install native plants at Town welcoming signs] |  | [Year #] |  | [Monthly, incorporate with regular landscape maintenance] | [$####] | [# of # native plant gardens] |
| [Residential Town Hall meetings curriculum materials for demonstration, handouts and visual aids] |  | [Year #] |  | [Annually, review how to improve lessons] | [$####] | [# of ##lessons] |

## Milestones

[*See Section 8.4 in the guidebook.* Discuss all milestones that have been chosen. Clarify time line and implementation priorities.]

[Primary milestones for restoring water quality through volume reduction of surface runoff can be:]

* [A certain number of gallons reduced;
* The number of shellfish harvesting areas reopened;
* The number of acres no longer impaired;
* The number of community members educated on stormwater runoff, stormwater reduction techniques.
* Number and duration of swimming advisories]

### Short-Term (< 5 years)

* [Reducing stormwater runoff by 5% (169,212.4 gallons) of 3,384,248.05 gallons through the implementation of stormwater reduction techniques
* Reduce the number of times Station ## exceeds FC 14/100ml from one to two times a year to one or less
* Reactivate the use of Station ##, which is more upstream that Station ## for monitoring, begin monitoring baseline data
* Educate 491 of 1,962 residents on stormwater runoff, stormwater reduction techniques
* Install 5 stormwater reduction projects
* Install ## of ## proposed stormwater reduction retrofits]

### Mid-Term (< 15 years)

* [Reducing stormwater runoff by ##% (###### gallons) of 3,384,248.05 gallons through the implementation of stormwater reduction techniques
* Reduce the number of times Station ## exceeds FC 14/100ml from one to two times a year to zero for consecutive years
* Recategorize the mouth of Creek monitored by Station ## from Conditionally Approved-Closed to Conditionally Approved-Open
* Recategorize upper creek from Closed to Conditionally Approved-Closed
* Educate ### of 1,962 residents on stormwater runoff, stormwater reduction techniques
* Install ## of ## proposed stormwater reduction retrofits]

### Long-Term (< 25 years)

* [Reducing stormwater runoff by #### gallons through the implementation of stormwater reduction techniques
* Reduce the number of times Station # exceeds FC 14/100ml to zero for consecutive years
* Recategorize the mouth of Creek monitored by Station # to Open
* Recategorize Creek from Closed to Conditionally Approved-Open
* Educate ### residents on stormwater runoff, stormwater reduction techniques
* Install ## proposed stormwater reduction retrofits]

## Monitoring

[*See Section 8.2.1 in the guidebook.* Discuss all proposed monitoring strategies.]

[In North Carolina consider and include the following information: Shellfish Sanitation and Recreational Water Quality section of the Division of Marine Fisheries (DMF) is responsible for monitoring the bacteria levels in coastal waters and has the authority to close waters to shellfishing and issue swimming advisories when bacterial levels are unacceptable. This is accomplished through monitoring water quality conditions at over a thousand stations for shellfishing and 240 stations for swimming.]

[ In addition, every three years N.C. Shellfish Sanitation staff ground truth the entire shoreline of shellfish growing areas to document current and potential pollution sources. The data collected by Shellfish Sanitation is publicly available and is a source of historical and present day information regarding water quality of an area. By utilizing data that has already been collected, communities can research and develop plans without implementing extensive and costly data collection and monitoring programs. Shellfish closure area information can be used by communities to determine what waterways are impaired and to what extent the waterway is being affected. Additionally, communities that have multiple watersheds within their boundaries can determine the level of impairment or the number of years a waterway has had that status to develop a list of watersheds to focus on or develop a prioritization list.]

Table 6-1. The primary goal of the watershed management plan and the indicators and how to measure the indicators.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Primary Goal Indicators | | | | |
|  | **Indicator** | **Measured by** | **Collected by** | **Collection Cycle** |
| **1** | [EXAMPLE: Water quality parameter (fecal coliform count, etc.)] | [Comparing numerical before and after measurements of the water quality indicator parameter or pollutant loads (if TMDL has been conducted) that is appropriate for the watershed, until baseline year levels or non-impaired levels are reached.] | [Shellfish Sanitation] | [Monthly] |
| **2** | [EXAMPLE: Stormwater Runoff Volume] | [Applying stormwater reduction techniques and determining how much stormwater is reduced by the techniques; these measures should attempt to reduce current stormwater runoff volume to the levels of the baseline year. Utilizing data collected by GIS analysis.] | [Organization] | [Yearly] |

## Evaluation

[*See Section 8.3 in the guidebook.* To ensure that the Watershed Management Plan is meeting the needs of the watershed and the community, the management plan should be evaluated on a regular basis to determine effectiveness (Table 6-4). Records keeping will be imperative to the long-term success of this plan and organized and meticulous records shall be kept. ]

Table 6-4. Evaluation of the Deer Creek Watershed Management Plan.

|  |  |  |  |
| --- | --- | --- | --- |
| **Evaluation** | **Partner** | **Indicator** | **Timeframe** |
| [Load reduction calculation for installed stormwater reduction projects ] |  | [Utilize *Watershed EZ tool*] | [Pre/Post implementation of projects] |
| [Progress towards meeting FC 14/100ml standards] |  | [Readings in excess of 14 should go from # per year at Station # to zero] | [Annual review] |
| [Mid-course evaluation ] |  | [Conduct full assessment of plan with suggestions on ways to enhance or redirect the plan] | [Year #] |
| [Education and Outreach Evaluation] |  | [Full evaluation of Education and Outreach success; review of surveys and stakeholder] [feedback, if successful seek funding for additional # years.] | [Year #] |
| [Pre and Post implementation monitoring of Station 25 once it is reactivated] |  | [Establish baseline conditions once reactivated and determine changed based on pre and post project installation] | [Pre/Post implementation of projects; Annual review] |
| [Evaluate stakeholder attitude towards Watershed ] |  | [Survey stakeholders for opinions and knowledge on watershed, stormwater, responsibility and general opinions on projects] | [Years 2, 5, 7 and 10] |
| [Publicize and evaluate successes] |  | [During education and outreach events update stakeholders on watershed successes] | [Throughout the project] |
| [Publish quick report updating stakeholders on watershed] |  | [Publish report on watershed health. Recognize past, current and future projects for the year. ] | [Annually] |

## Cost and Technical Needs

[*See Section 8.5 in the guidebook.* Discuss all costs, budget and technical assistance necessary to achieve this plan. This includes necessary costs and technical assistance needed for the administration and management of projects, salaries, in-kind volunteer services, donations of facility time, education and outreach needs, installation and maintenance of management measures, monitoring and data management]

## Funding

[*See Section 8.5 in the guidebook.* Discuss all available funding and all proposed funding as well as discuss existing resources]

# References

[Include all references here.]

# Appendix