

# *Raritan Basin Watershed Management Project*

Raritan Basin



Central to New Jersey

## North & South Branch WMA/Lower Raritan WMA Stormwater Strategy Development Session

### Potential Strategies, Tasks, Ideas, etc.

#### **Flooding**

- Criteria and standards for the control of stormwater from existing and new development which are necessary to minimize dangers to property and life.
- Consider the carrying capacity of the watershed in designing a stormwater management system.
- Survey of existing drainage problems and proposed solutions.
- Analysis of present and projected development in flood hazard areas and its sensitivity to damage from future flooding or increased runoff.
- Preserve and utilize natural drainage systems.

#### **Quantity**

- Maximize on-site storage of stormwater.
- Provide for water quantity protection of the receiving water body.
- Encourage project designs that minimize land clearing activities and impervious surface and retain native vegetation for landscaping. Designs should duplicate existing flow regime and volume conditions as closely as possible in a manner that protects water resources. Designs should utilize the pervious landscape to naturally filter and infiltrate runoff before it leaves the development site where possible.
- Provide for stormwater flow, volume and velocity control to replicate pre-development or pre-settlement conditions for all runoff events, where possible.
- All new development in the basin shall seek to achieve no net detrimental change in natural surface runoff and infiltration.
- Provide information on BMPs for controlling and infiltrating stormwater flow with proper safeguards to protect groundwater, to protect natural hydrology and processes and maintain adequate stream flows.
- Reproduce pre-development hydrologic conditions

- Incorporate measures to retain natural hydrology and processes, such as establishing goals for limiting effective impervious surfaces and preserving open spaces and forests.
- Annual groundwater recharge rates shall be maintained by promoting infiltration through the use of structural and non-structural methods.
- Encourage use of stormwater as a resource to recharge aquifers, streams and wetlands and maintain the natural hydrology of the watershed.
- Site designs shall reduce the generation of stormwater and utilize pervious areas for stormwater treatment.
- Minimize impervious surface and reduce the rate of runoff (maintain natural buffers and drainage ways; minimize the creation of steep slopes, minimize placement of new structures or roads over porous or erodible soils, maintain as much pre-development vegetation as possible).

## Quality

- Encourage project designs that minimize land clearing activities and impervious surface and retain native vegetation for landscaping. Designs should duplicate existing flow regime and volume conditions as closely as possible in a manner that protects water resources. Designs should utilize the pervious landscape to naturally filter and infiltrate runoff before it leaves the development site where possible.
- Mitigate water quality effects such as nutrient, sediment and heavy metals loading and the impact of stormwater discharges on water resources.
- Provide for protection of the water quality of the receiving water body.
- Utilize nonstructural techniques, including pollution prevention and source reduction, to minimize the type of treatment the stormwater needs.
- Stormwater discharges from land uses or activities with higher potential loadings, defined as 'hot spots', may require the use of specific BMPs.
- Alter stormwater management facilities or systems built for flood control to improve water quality.
- Promote development patterns, densities and management strategies which minimize the increase in stormwater runoff and associated pollutants.
- Stormwater discharges to critical or sensitive areas may be subject to additional performance criteria.
- Preserve and utilize natural drainage systems.

## **Funding**

- Encourage innovative ways for funding the implementation of stormwater management practices and the operation, maintenance or enhancement of systems.
- Identify and take the necessary steps to ensure funding for implementation and continuing operation, maintenance and replacement of stormwater control systems.
- Create local funding capacity, such as a utility, to ensure adequate, ongoing funding for stormwater management activities and to provide funding to contribute to regional stormwater management projects.

## **Education**

- Offset the costs of stormwater management systems by identifying and utilizing ecological and social beneficial values.
- Educate municipal officials and other pertinent stakeholders about the relationship of stormwater management programs to healthy watersheds and sustainable, cost effective development.
- Develop and implement a storm water ordinance and guidance or a design manual that include performance standards designed to control runoff impacts.
- Develop and implement a training program on stormwater BMPs for county and municipal officials and employees.
- Provide guidance, technical assistance, financial assistance and training to applicable organizations.
- Provide standards for the design, operation and maintenance of public and private permanent and temporary stormwater facilities and structures.
- Provide information on BMPs for innovative land clearing practices, including clearing in sections and preserving forests, vegetation and open spaces.
- Provide guidance on preparing stormwater site plans, selecting BMPs and strengthening minimum requirements through watershed planning and monitoring.

## **Existing**

- Identify opportunities for improvements in existing stormwater management programs.
- Develop and implement a stormwater retrofit implementation strategy (inventory, assessment, prioritization, implementation).
- Retrofit existing stormwater management facilities.

- Identification and ranking of existing stormwater problems that degrade water resources and planning and scheduling to mitigate these problems.

## **O&M**

- Institute a program of inspection and maintenance of stormwater facilities so these structures perform at maximum efficiency.
- Adopt ordinances that require that all permanent stormwater facilities be regularly maintained according to appropriate guidance to ensure performance.
- All BMPS shall have an enforceable operations and maintenance agreement to ensure the system functions as designed.
- Develop a database for completed stormwater management facilities for maintenance purposes.
- Institute a regional watershed approach to stormwater facility management.

## **Planning**

- Clarify relationships among existing stormwater management activities (e.g. laws, regulations, policies, agencies). Describe the role of local land use planning in effective stormwater management.
- Develop and implement a non-structural approach to stormwater management.
- Develop and implement local programs that combine land use planning, watershed planning and comprehensive stormwater management.
- Review new development and redevelopment projects to ensure that stormwater control measures are adequate and consistent with local requirements.
- Adopt ordinances that require the use of BMPs to control stormwater flows, provide treatment and prevent erosion and sedimentation from all new development and redevelopment projects.
- Adopt ordinances that allow and encourage low impact development practices.
- Reduce directly connected impervious surfaces through the use of low impact development and better site design techniques
- Assessment of projected and alternative land development patterns and potential impact on runoff quantity, quality and velocity.
- Assessment of alternate runoff control techniques and their effect in the particular watershed.

- Design the development site utilizing site planning techniques to minimize runoff.
- Determine necessary control measures based on the receiving water's sensitivity to discharges; consider direct water quality impacts, channel protection, groundwater recharge, flood events.