



Municipal Stormwater Management Planning

Christopher C. Obropta, Ph.D., Extension Specialist in Water Resources & Sandra M. Goodrow, Program Associate in Water Resources

New Jersey's waterways have been spoiled by many years of neglect and indifference. Based upon the New Jersey Department of Environmental Protection's (NJDEP) latest evaluation, out of 2,308 assessed river miles, 1,913 miles, or 83% of those waterways did not meet surface water quality standards for at least one parameter (NJDEP, 2003). Beginning with the Clean Water Act in 1972, point discharges to streams have been strictly regulated and permitted. But up until now, little guidance or regulations have been in place to control the impact of nonpoint source pollution or "people pollution" (i.e., the pollution that is carried from our everyday activities to our waterways by stormwater runoff). In the recently promulgated Stormwater Management rules (N.J.A.C. 7:8) (NJDEP, 2004) and Stormwater Permitting Rules (N.J.A.C. 7:14A), the NJDEP has taken a huge step forward in regulating nonpoint pollution sources.



A key component of these new regulations is the requirement for all municipalities in New Jersey to develop Municipal Stormwater Management Plans.

The Stormwater Permitting Rules require the municipalities to develop a plan, while the Stormwater Management Rules provide the details of the contents of the plan. In developing these Municipal Stormwater Management Plans, municipalities have the opportunity to assess the

health of their waterways and identify sources of pollution throughout their municipalities. With all the information gathered, the municipalities must come up with a plan that is accompanied by a Stormwater Management Ordinance, which will serve to reduce nonpoint source pollution to their receiving streams.



Goals for Stormwater Management Planning

The goals for stormwater management planning are detailed in N.J.A.C. 7:8-2.1 and include the following:

1. Reduce flooding damage, including damage to life and property;
2. Minimize, to the maximum extent practical, any increase in stormwater runoff from any new development;
3. Reduce soil erosion from any development or construction project;
4. Assure adequacy of existing and proposed culverts and bridges, and other stream structures;
5. Maintain groundwater recharge;



6. Prevent, to the greatest extent feasible, an increase in nonpoint source pollution;
7. Maintain the integrity of stream channels for their biological functions, as well as for drainage;
8. Minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the State, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and
9. Protect public safety through the proper design and operation of stormwater management basins.



New Development vs. Existing Development

In an effort to promote smart growth policies, the rules deal with new development differently than existing development. The rules mandate that the Municipal Stormwater Management Plan *shall* address stormwater related water quality impacts, groundwater recharge impacts, and water quantity impacts of new development that is considered “major development.” Major development is described as that which ultimately disturbs an acre or more of land. Referring to existing development, these same issues *may* be addressed in the plan that the municipality creates.

Putting Together a Plan

The municipal plan for stormwater management must conform to other applicable water quality and water quantity plans, if they exist, such as Regional Stormwater Plans and/or Total Maximum Daily Load (TMDL) implementation plans. Although these other plans may not be in place before the initial municipal plan is due from the town, it is important that the municipality participates in any TMDL and regional planning process. Once a regional stormwater management plan or a TMDL implementation

plan has been adopted as an amendment to the Areawide Water Quality Management Plan, the municipality has one year to amend their respective municipal plans and stormwater control ordinances to implement the requirements of the updated Areawide Plan.

Background Information on the Municipality

A sample municipal stormwater management plan is located in Appendix C of the NJDEP’s Best Management Practices (BMP) Manual, which can be downloaded from: www.njstormwater.org/tier_A/bmp_manual.htm and can serve as a template for a town to embark on their own plan. The plan is expected to include a brief description of the hydrologic cycle and how development affects this cycle. The introduction should also include the background of the municipality, consisting of elements such as size, population, change in population over time, waterways, and the health of those waterways.

Background Information can be Found at:

- The New Jersey Integrated Water Quality Monitoring and Assessment Report [305(b) and 303(d)]. This report is available from the NJDEP website at: www.nj.gov/dep/wmm/sgwqt/wat/index.html.
- AMNET data (specific data on biological monitoring). Relevant data can be found at: www.state.nj.us/dep/wmm/bfbm.
- US Geological Survey (USGS) (stream flow reporting). Historical and real time data can be found at: www.usgs.gov.
- Population Statistics (through the Department of Labor). Information on population characteristics can be found at: www.wnjp.in.net/OneStopCareerCenter/LaborMarketInformation/lmi25/index.html.

Necessary Plan Components

The details on what is expected in the municipal plan are given in Section 7:8–4.2(c) of the Stormwater Rules. The plan “shall, at a minimum:”

1. Describe how the plan will achieve the nine goals of stormwater management presented above;
2. Include maps showing waterways (based on Soil Surveys published by the U.S. Department of Ag-

- riculture; USGS Topographic Map; or other sources with similar or greater detail);
3. Maps of groundwater recharge and wellhead protection prepared by NJDEP or a municipal ordinance;
 4. Describe how the municipal stormwater management plan incorporates design and performance standards in N.J.A.C. 7:8-5 or alternative design and performance standards adopted as a part of a regional stormwater management plan or water quality management plan;
 5. Describe how adequate long-term operation, as well as preventative and corrective maintenance (including replacement) of selected stormwater management measures will be ensured;
 6. Describe how the plan will ensure compliance with Safety Standards for Stormwater Management Basins (N.J.A.C. 7:8-6);
 7. Describe how the plan is coordinated with the appropriate Soil Conservation District and any other stormwater management plans. Compliance with the Residential Site Improvement Standards (N.J.A.C. 5:21) along with New Jersey Soil Erosion and Sediment Control Standards are expected. In addition, it must be determined if a regional stormwater management plan or a TMDL has been prepared for a waterway within the municipality, and if so, the municipalities' plan must conform;
 8. Evaluate the extent to which the municipality's entire master plan, official map, and development regulations implement the principles expressed in N.J.A.C. 7:8-5.3, which supports the use of nonstructural stormwater management strategies. (See Appendix B of the BMP manual for a Municipal Regulations Checklist to determine where these low impact development strategies can be incorporated);
 9. Include a map of the municipality showing a) projected land uses assuming full development under existing zoning and b) the hydrologic unit code 14 (HUC 14) drainage areas as defined by the USGS; and an estimate, for each HUC 14 drainage area, of the total acreage in the municipality of impervious surface and associated future nonpoint source pollutant load assuming full build out of the projected land uses;

10. If the municipality can document that it has a combined total of less than one square mile of vacant or agricultural lands, the information in 8 and 9 above does not have to be included in the plan;
11. Include a mitigation plan to address the potential need for a variance or exemption from the design and performance standards of 7:8-5 (see information below);
12. Include a copy of the recommended implementing stormwater control ordinance(s);
13. May include a stream corridor protection plan to address protection of areas adjacent to waterbodies. If the municipality includes waterbodies subject to N.J.A.C. 7:8-5.5(h) (Special Resource Protection Areas), the plan should provide the appropriate level of compliance.

Mapping

Mapping required for a municipal plan is fairly simple, but requires Geographic Information System (GIS) software. Mapping information is available at www.nj.gov/dep/gis/lists.html as well as a link to a free version of GIS software, ArcExplorer. Many local watershed associations and environmental commissions have GIS and can help create maps for a municipal stormwater management plan. Rutgers University Center for Remote Sensing and Spatial Analysis can also assist in preparing these maps. The GIS Center at Stony Brook-Millstone Watershed Association can also provide GIS mapping assistance (www.giscenter.org). Detailed direction on how to create these maps is provided at http://rwqp.rutgers.edu/univ/nj/phase_2.htm.

Stormwater Control Ordinance

A Stormwater Control Ordinance should contain language that addresses items 4, 5, and 6 listed above. A sample Stormwater Control Ordinance is presented in Appendix D of the BMP Manual. Although a municipality may simply wish to adopt this sample ordinance, the municipal engineer, planner, and attorney should thoroughly review the sample ordinance to assure it satisfies the needs of the municipality.

Mitigation Plan

There may be instances when a municipality wishes to grant a variance or exemption for the design and performance standards that are outlined in the Stormwater Control Ordinance. To grant these variances or exemp-

tions, the municipal stormwater management plan should include a mitigation plan that identifies what measures are necessary to offset the deficit created by granting the variance or exemption. The mitigation plan provides an opportunity for the municipality to reduce stormwater runoff from existing development.

There are basically four mitigation procedures that the plan can incorporate:

- The Developer is responsible for identification and construction of mitigation projects,
- The Developer selects from locations under municipal authority,
- The Municipality has a list of projects from which the developer may select, or
- The Developer provides funding for municipal stormwater management measures.

The mitigation plan must require that the mitigation is completed in the same drainage area, and the mitigation is for the same performance standard for which the variance or exemption was granted. The mitigation plan allows for the municipality to identify stormwater quantity, quality, and/or recharge issues associated with existing development, develop a list of projects, and offer these projects to developers who are seeking a variance or exemption from design and performance standards outlined in the Stormwater Control Ordinance.

The municipality should be careful of allowing off-site mitigation in lieu of on-site compliance in an effort to remediate stormwater impacts from existing development. If not properly controlled, mitigation projects could fix

today's problems but leave future generations with new stormwater related problems from today's new development.

Compliance

A municipality must adopt a municipal stormwater management plan as an integral part of its master plan and official map either by (a) or (b) below, whichever is sooner.

- (a) By the deadline established in a New Jersey Pollutant Discharge Elimination System permit obtained by the municipality for a municipal separate storm sewer system (MS4) under N.J.A.C. 7:14A or;
- (b) By the next reexamination of the master plan under N.J.S.A. 40:55D-89, if a grant for 90 percent of the costs for the preparation of the municipal stormwater management plan has been made available to a municipality by the NJDEP.

The municipality must submit a copy of the adopted stormwater management plan and stormwater control ordinance(s) to the county review agency and to the NJDEP for evaluation of conformity with these rules.

References

- New Jersey Department of Environmental Protection (NJDEP). 2003. New Jersey 2002 Integrated Water Quality Monitoring and Assessment Report [305(b) and 303(d)].
- New Jersey Department of Environmental Protection (NJDEP). 2004. N.J.A.C 7:8 Stormwater Management, Final Rule. February 2, 2004.