

Stormwater Management

Introduction

Incorporated by reference in this Monroe 2020 Comprehensive Plan are the three extant Stormwater Management Plans prepared in accordance with Act 167; for the Tobyhanna, Brodhead, and McMichaels watersheds along with their model stormwater management ordinances. These plans cover about two-thirds of the County's land and water area. Also incorporated by reference is the county-wide Solid Waste Management Plan.

Stormwater Management

The 127 sq. mi. Tobyhanna Watershed is almost completely within Monroe County, with small sections in Wayne and Carbon. It represents about 20 percent of the County's land area, contains most of Coolbaugh, Tobyhanna, and Tunkhannock Townships as well as a segment of Mt. Pocono. The County adopted the Management Plan in June, 1997. Its prescriptions are particularly important because the watershed contains two of the prime development centers (Coolbaugh-Mt. Pocono with the new Economic Development Corridor and Blakeslee) as well as substantial streams, lakes, and other water resources. Since Tobyhanna is the most recently prepared and adopted of the three (1997) it best represents current engineering and state DEP thinking on the subject. Especially relevant sections of the document are below.

Large portions of this watershed are undeveloped with a potential for extensive growth. The effects of this potential growth and development on drainage, flooding, and erosion problems is a major concern for county and township officials and affected property owners. Extensive commercial growth along Route 940 and Route 115 can result in accelerated stormwater runoff which has the potential of causing flooding and erosion problems for property owners along the Tobyhanna Creek. Stream water quality can also become degraded as impervious areas grow throughout the watershed⁴⁶.

Stormwater Management

The broad perspective of stormwater management deals with bringing surface runoff caused by precipitation events under control. In former years, stormwater control was viewed only on a site-specific basis. Recently, local perspectives and policies have changed, realizing that proper stormwater management can only be accomplished by evaluating the comprehensive picture, (i.e., by analyzing what adverse impacts a development located in a watershed's headwaters may have on flooding downstream). Proper stormwater management reduces flooding, soil and streambank erosion and sedimentation and improves the overall quality of the receiving streams.

Stormwater management involves cooperation between the state, county and local officials and involves proper planning, engineering, construction, operation and maintenance. This entails educating the public and local officials, and requires program development, financing, revising policy, development of workable criteria and adoption of ordinances. The Tobyhanna Creek Watershed Stormwater Management Plan, under the Stormwater Management Act, will enable the Tobyhanna Creek watershed to develop in a controlled, systematic fashion utilizing both structural and non-structural measures to properly manage stormwater runoff in the watershed⁴⁷.

⁴⁶ *Monroe County Conservation District and RKR Hess Associates, Inc. Act 167 Watershed Stormwater Management Plan, Volume I, Executive Summary, Tobyhanna Creek Watershed, 1997, p. I-1.*

⁴⁷ *Ibid, p. I-2.*

Documentation of the Physical Watershed Characteristics

Existing physical characteristics of the watershed were obtained from field surveys, published data, aerial photography and topographic map interpretation. Data acquired included existing land use, soils, land slopes, water impoundments and flow obstructions⁴⁸.

Runoff Control Strategy Development

. . . The basic runoff control strategy employed for Tobyhanna Creek watershed is not to increase peak runoff rates throughout the watershed even after development activities take place . . . With the increase in impervious area which accompanies site development, stormwater volumes inevitably increase, unless of course the increase in runoff volume is recharged to the ground water . . . The conclusion from the comprehensive approach is that in exchange for the increase in runoff volume with development, the rate of runoff leaving a site may have to be decreased. The magnitude of the required decrease in peak rate for a given site is determined from the computer model⁴⁹.

Subregional (Combined Site) Storage

Traditionally, the approach to stormwater management has been to control the runoff on an individual site basis. However, there is a growing commitment to finding cost-effective comprehensive control techniques which both preserve and protect the natural drainage system. In other words, two developers developing sites adjacent to each other could pool their capital resources to provide for a community stormwater storage facility in the most hydrologically advantageous location.

The goal should be the development and use of the most cost effective and environmentally sensitive stormwater runoff controls which significantly improves the capability and flexibility of land developers and communities to control runoff consistent with the Tobyhanna Creek Watershed Stormwater Management Plan.

An advantage to combining efforts is to increase the opportunity to utilize stormwater control facilities to meet other community needs. For example, certain stormwater control facilities could be designed so that recreational facilities such as ball fields, open space, volleyball, etc. could be incorporated. Natural or artificial ponds and lakes could serve both recreational and stormwater management objectives.

To take this concept a step further, there is also the possibility that the stormwater could be managed “off-site”; that is, in a location off the property(s) in question. There could be publicly owned detention, retention, lake, pond or other physical facilities to serve multiple developments. The design would need to be consistent with the Plan⁵⁰.

The model ordinance which accompanies the plan provides specifications on stormwater management characteristics, on drainage plan requirements, inspections, maintenance responsibilities and suggests fees, fines, and enforcement characteristics. It is quite extensive and has already been adopted by some municipalities in the watershed.

The Brodhead Creek Watershed Stormwater Management Plan was adopted by the County substantially earlier in the decade (1991) and was also prepared by the Conservation District, Planning Commission and RKR Hess. It covers 172 square miles, with a small portion extending into Pike County. It addresses all or part of 12 Monroe County municipalities, the boroughs of Stroudsburg, East Stroudsburg, and Mt. Pocono, along with Smithfield and Middle Smithfield,

⁴⁸ *Ibid pp II-1. This information is particularly important as the base for arriving at a watershed-wide wastewater disposal and treatment plan, and its collection need not be repeated.*

⁴⁹ *Ibid, II-2*

⁵⁰ *Ibid, p. II-3*

Part II . . . The Analysis

Stroud, Price, Pocono, Paradise, Barrett, Coolbaugh, and Tobyhanna. Data and maps are extensive, as in the Tobyhanna presentation. The model ordinance deals with essentially the same material as in the Tobyhanna Watershed, although it may be somewhat outdated in light of the newer Tobyhanna version. Both the data and conservation thrust of the Brodhead Plan are particularly important to implementation of Monroe 2020 development center recommendations because the area covered includes the sections of the four municipalities (Stroud, Stroudsburg, East Stroudsburg and Smithfield) that would become Monroe County's major growth center.

McMichaels Creek Watershed is the setting for the third stormwater plan, adopted by the county in 1988 but containing essentially the same directives as the other two. It covers 113 square miles exclusively in Monroe County, much of the rest of the county not covered in the other two. Continuity is represented by the three preparing entities who were also responsible for the Brodhead and Tobyhanna.

McMichaels Creek generally travels in a southeast, east, then northeastern direction with its watershed beginning in a very small portion of Tunkhannock Township. Portions of Hamilton, Ross, Chestnuthill, Jackson, Tunkhannock, Pocono and Stroud Townships are contained in the watershed as well as a portion of Stroudsburg Borough. The watershed is comprised of two major drainage basins: the McMichaels and Appenzell Creeks (approximately 67 square miles); and the Pocono Creek (approximately 46 square miles) which empties into the McMichaels Creek approximately 4,900 feet upstream of the confluence of the McMichaels Creek with the Brodhead Creek⁵¹.

The McMichaels Creek plan encompasses the fastest growing municipality in the County (Chestnuthill), as well as two proposed development centers at Tannersville and Chestnuthill. This plan also contains a model ordinance, which has probably been superseded by the most recently prepared Tobyhanna example.

Solid Waste Management

Monroe County's Municipal Waste Management Plan, completed in February, 1998 is the final document to be incorporated by reference. It was prepared for the County's Municipal Waste Management Authority under Act 101 of 1988 and was an update of an earlier plan adopted by the County in 1991. It provides data and projections on the full range of components in the waste stream and deals with both recycling and disposal, all of the sites for which are designated (under current long-term contracts) at locations outside of Monroe County. Of particular importance to Monroe 2020 is its recommendation that municipalities establish joint agreements for collection and processing of recyclables. Principal conclusions and recommendations of the Plan are identified below:

The annual Municipal Waste disposal reported for Monroe County in 1996 included approximately 85,189 tons of MSW (Municipal Solid Waste), 13,412 tons of C&D (Construction and Demolition) and 7,977 dry tons of Sewage Sludge and Septage. These types of waste will be considered County Regulated Waste . . . in the Plan. Approximately 11,228 tons of recyclables were reported as having been diverted from the MSW stream in 1996, yielding a county-wide recycling rate of 11.65 percent⁵².

⁵¹ *Monroe County Conservation District, Monroe County Planning Commission, R.K.R Hess, Act 167 Watershed Storm Water Management Plan, Phase II, McMichaels Creek Watershed, Vol. II 1988, p. 4.*

⁵² *Gershman, Brickner & Bratton, Inc.; Monroe County Municipal Waste Management Plan, 1998 p. e-1.*

G. Stormwater Management and Solid Waste Plans

Implementing Entity

The Authority is charged to negotiate new, long-term contracts for waste disposal capacity and services on behalf of the County and the Authority. The Authority is to develop outreach and cost-effective initiatives to achieve increased waste reduction and recycling county-wide. The Authority will monitor waste generation, collection and disposal/processing to ensure the adequacy of the “system” serving the County throughout the planning period. The Authority will license waste haulers and enforce the County Municipal Waste Management Ordinance, and will work with the stakeholders in the solid waste management system toward improved waste management and environmental stewardship⁵³.

Recycling

In response to input from the stakeholders in the County’s waste management system, it is determined that efforts must be made to raise the county-wide diversion rate to at least 25 percent and sustain it. In addition, expanded outreach to the commercial sector, to increase waste reduction and recycling and improve the reporting of these activities, should be a priority.

In order to achieve a greater level of recycling, the Solid Waste Advisory Committee (SWAC) proposes that the Authority, along with the Council of Governments, develop regional, intermunicipal collection areas for recyclables in the County. It is also proposed that, in conjunction with the private sector, the Authority should procure a Materials Recovery Facility (MRF) that can process residential and commercial recyclables as well as C&D waste. This facility would be developed only if collection areas are successfully negotiated and the private sector involvement is partnered with the public in an equitable manner. Existing municipal programs would be encouraged to become part of the County network, and a dedicated position would be created at the County level to enhance commercial/municipal recycling⁵⁴.

Increased Control of Open Burning by Municipalities

SWAC recommends that municipalities continue to develop individual ordinances following the suggested guidelines developed by SWAC⁵⁵.

Plan Implementation

The legal/institutional framework for implementing the Plan is based on the County Municipal Waste Management Ordinance, the Rules and Regulations adopted pursuant to that Ordinance, the contracts with disposal processing facilities, and the resolutions of Plan adoption by the County and the municipalities in the County. Other anticipated agreements are to be developed to provide for (1) regional inter-municipal cooperation in recyclables collection and processing; (2) a public-private partnership in a MRF capable of processing residential and commercial recyclables and C&D waste; and (3) multiple county Household Hazardous Waste (HHW) management programs⁵⁶.

⁵³ *Ibid*, e-2

⁵⁴ *Ibid*, e-3

⁵⁵ *Ibid*, e-3

⁵⁶ *Ibid*, p. e-5