

Section VI

UTILITIES PLAN ELEMENT

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INTRODUCTION

The master planning of wastewater, water supply, and stormwater management facilities is necessary for cost effective development and maintenance of these public utility systems. The planning of these utility systems is predicated on the land development which municipal zoning ordinances allow. As land development proceeds under many societal, economic, and environmental influences and/or zoning changes, the planning of the utility systems must also be revisited.

Extensions of these utility systems in the Township have been constructed by private interests to serve land development projects. The utility construction has been in conformance to the Township's technical standards and, to the greatest practical extent, in conformance with the Township's Master Plan. The ownership, operation, and maintenance of significant portions of the wastewater and stormwater utility systems are the responsibility of the municipal government. Some portions of the wastewater system remain with private owners, and some portions of the stormwater system remain with homeowner's associations. The ownership, operations, and maintenance of water for consumption and fire service are the responsibility of a private corporation under a franchise agreement governed by the State Board of Public Utilities.

A consistent theme of the Township's Master Plan has been consideration of the visual impacts of above ground utilities. Placement of all utilities underground has been promoted in the Township's Ordinance and substantially accomplished for new development. Relocation of existing above ground utilities should also be promoted, particularly in redevelopment areas such as Princeton Junction.

GOAL/POLICY STATEMENT

A. Goal: Insure the provision of adequate and appropriate wastewater treatment, water supply, and stormwater utilities systems to protect the public health, welfare and the natural environment in a cost effective manner.

Policies

1. Ensure that moderate and higher density development areas are adequately served by public water, sewer, storm drainage, and other utility systems in an economic and coordinated manner and in a manner consistent with the Township's 208 Wastewater Management Plan.
2. Ensure that development proposed in septic service areas adhere to strict environmental performance standards and follow sound septic management techniques to assure high levels of water and stream quality.
3. Continue to encourage clustering where appropriate as a design technique to help preserve open space, protect environmentally sensitive areas, reduce infrastructure and maintenance costs. Encourage efficiencies in the design of new residential development that will minimize public service costs. Encourage efficiencies in the design of new residential development that will minimize public service cost.
4. Utilize best management practices for: efficient conveyance of wastewater; efficient distribution of potable water; stormwater flood control, erosion control, groundwater quality, surface water quality and ground-water recharge; and environmental protection.
5. Maintain master utility plans and ordinances, which will provide cost effective service for current and future Township needs.

SECTION VI - UTILITIES PLAN ELEMENT

6. Coordinate the construction and installation of improvements to ensure that utility services are available when needed.
7. Municipal policy has been, and continues to be, not to extend utilities; developers or individual property owners must extend the utilities at their own cost.
8. Promote utility construction and relocation to be underground including existing above ground telephone and electric lines in selected developed areas like Princeton Junction.
9. Coordinate utility services with other private and public agencies where beneficial.
10. Maintain the adequacy of existing and proposed culverts and bridges, dams and other structures.
11. Promote groundwater recharge where favorable geological conditions exist.
12. Decrease non-point source pollution, to the greatest extent feasible.
13. Maintain the integrity of stream channels for their natural functions, including drainage and ecological purposes.
14. Continue to design sewer flow based on a gravity system wherever possible and practical.

WASTEWATER MANAGEMENT

208 Plan

Local government wastewater management planning is controlled by the NJDEP through review and approval of regional Water Quality Management Plans. Mercer County is the regional agency responsible to NJDEP for West Windsor Township's Water Quality Management Plan (a.k.a. the "208 Plan" from its legislative authorization). Water quality planning includes protective measures for both surface waters and groundwater. The conveyance, treatment, and re-entry of treated wastewater to the environment are addressed regionally by the Water Quality Planning process, and locally in West Windsor's approved 208 Plan.

The 208 Plan identifies two categories of wastewater treatment: those areas of the Township which are approved to be served by public sewers, and those areas to be served by onsite disposal systems (septic systems). The designation of these areas is integral with environmental conditions, land planning, and zoning. These areas are illustrated on the following Sanitary Sewer exhibit.

The process of 208 Plan review and approval is dynamic. Amendments to the Plan are proposed and approved periodically to address evolving environmental, land development, and zoning interests. As such, there currently exist within the Township developed properties on septic systems which are within a designated public sewer area. Of specific note, there are more than 1,000 single family homes with septic systems in the northern and eastern portions of the Township built within the last twenty years which are now located within a public sewer area. Groundwater quality within this area and surface water quality downstream of this area have been monitored for more than ten years.

Additionally, there are homes and small commercial buildings on septic systems in various other areas of the Township.

SECTION VI - UTILITIES PLAN ELEMENT

Wastewater Conveyance

West Windsor Township owns and maintains more than 100 miles of underground waste-water collection/conveyance pipes and five pumping stations, which collect and convey wastewater from homes and businesses within its municipal borders. Additionally there are privately owned and maintained piping and pumping facilities within office parks, corporate campuses, educational campuses, and larger high density residential developments.

The conveyance system has been built under NJDEP jurisdiction, predominantly by private development funds over the past 25 years. A master plan based on multiple drainage basins, which prescribed gravity flow and minimized pump stations, was followed to the greatest extent feasible. Those pump stations, which have been constructed, were located and designed to be abandoned when in-fill development brought the master planned gravity trunkline within close proximity. Easements for the master planned system have been secured as properties were proposed for development. Land use development patterns within West Windsor Township over the past 25 years combined with changing land use preferences and land development law, have modified the requirements for the Master Plan Wastewater Collection System. Portions of the conveyance system are reaching capacity. Portions of the Master Plan gravity system may not be built for an extended period of time. Some of the "temporary" pump stations that have been in operation for up to twenty years may be required for additional extended periods. Modification and modernizing of some of these facilities has already begun with developer funding.

The Wastewater Element of the Master Plan continues the intent of the long-term economy of a gravity conveyance system. The underlying studies for the wastewater master plan of West Windsor Township are represented in the following documents:

1. For the Stony Brook Drainage Basin, "May 1975 Status Report of Sewerage Facilities" by Ditmars and Carmichael 1975, amended January 1976, and associated addenda.
2. For the Assunpink Drainage Basin, Assunpink Drainage Basin Study - Sewer Master Plan Revisions, Phase II Report," dated February 1, 1982, by Fellows, Read and Associates.
3. Sanitary Sewer Flow Map of West Windsor Township, January 2000.

Wastewater Treatment

The vast majority of the wastewater generated in West Windsor Township is treated at a facility on River Road in Princeton Township operated by the Stony Brook Regional Sewerage Authority (SBRSA). West Windsor Township is one of seven municipal members of the Authority. By its charter, SBRSA must take the flows that the member municipalities send.

West Windsor Township's wastewater is conveyed from the Township's conveyance piping to a SBRSA trunkline and then to the Treatment Plant. West Windsor Township's wastewater flow, now exceeding 1,800,000 gallons per day, continues to increase as commercial and residential development continues in the approved public sewer service area of the Township. Properties in West Windsor Township which have preliminary land use approval but which are yet to be constructed hold reservations of treatment capacity in excess of 600,000 gallons per day.¹ Full buildout of remaining undeveloped land and connection of existing properties not on public sewers would generate an additional wastewater flow of 1,970,000 + GPD. Discussion with the seven

¹ This does not include the 350 acres of recently acquired open space/farmland which would have generated a demand of 30,000 gallons of wastewater

SECTION VI - UTILITIES PLAN ELEMENT

member municipalities of the SBRSA is warranted in order to evaluate the capacity and timing for facility upgrades that would be required in order to accommodate the build-out sewage flow from West Windsor.

Current SBRSA River Rd treatment plant capacity values are:

Plant permitted capacity	13,064,000 GPD
Actual flow*	9,200,000 GPD
Reserved Capacity*	1,900,000GPD
Available capacity**	1,964,000GPD

**for all municipalities served including West Windsor Township.*

***on a "first come, first serve" basis among the member municipalities.*

The West Windsor Township 208 Plan identifies several properties within the Township which are served or approved to be served by other wastewater treatment agencies.

- Hamilton Township treats the wastewater generated by the Mercer County educational facilities in the southern corner of the Township.
- East Windsor Township Municipal Utilities Authority treats the wastewater from a portion of a retail center on Dorchester Drive. There is no expansion potential in the East Windsor sewer system for additional development in West Windsor.
- Ewing - Lawrence Sewerage Authority will treat the wastewater from a commercial property being redeveloped on Village Road West at Quakerbridge Road.
- Wyeth (Cyanamid) treats the wastewater from its own facilities at an onsite plant. However, the plant is limited in expansion potential. Future development of the site will require connection to the public sewer system through the Duck Pond Run (south branch) interceptor line. There is substantial capacity available in the interceptor, however a new trunkline from the Wyeth (Cyanamid) site to the interceptor would be required. See the section above for discussion of treatment capacity at SBRSA.

WATER SUPPLY

Potable water for consumption and fire fighting is provided in most of the developed portions of West Windsor Township by an underground piping system which is owned, operated, and maintained by Elizabethtown Water Company. There are also a limited number of residential portions of the Township which have individual on-lot wells.

The Elizabethtown Water Company system is interconnected with adjoining municipalities, which they also serve. The piping network is supplied by deep wells and surface water sources, all of which are outside West Windsor Township except for several wells in the northwest corner of the Township near Harrison Street which are utilized intermittently. The water supply system is shown on the following Water Distribution exhibit.

The properties with onsite wells generally are located in older developed portions of the Township, which are also served by septic systems, e.g. Cubberly Rd., South Post Rd., South Lane. The extension of the public water system to these areas would reduce the potential health risks and benefit public safety by providing hydrants for fire fighting.

The responsibility for providing water is solely with Elizabethtown Water Company who maintains

SECTION VI - UTILITIES PLAN ELEMENT

a master plan for their system within West Windsor Township. No separate Master Plan is maintained by the Township.

STORMWATER

West Windsor Township is located on a drainage divide in central New Jersey. Precipitation falling in the western and southern portions of the Township runs off to watercourses that flow to the Delaware River. The northern and eastern portions drain to watercourses that flow to the Millstone River.

The relatively flat topography throughout the Township would provide substantial opportunity for flooding without the construction of onsite stormwater management facilities as development occurs. Stormwater management facilities provide flood protection, promote ground water recharge, prevent soil erosion and enhance the quality of groundwater and surface water.

Flood Control

There are no known impacts to buildings in West Windsor Township during storm events from flooded watercourses. However, roads in low-lying areas do flood regularly which compromises emergency services. Flooding currently occurs on roads crossing Duck Pond Run and Little Bear Brook, along Clarksville Rd. near Wyeth (Cyanamid) and near Grovers Mill Pond.

The existing major flood control facilities in the Township include Grovers Mill Pond Dam on the Big Bear Brook and the Lake Mercer Dam on the Assunpink Creek. These facilities are owned and maintained by West Windsor Township and Mercer County respectively.

As land development has occurred, onsite stormwater management facilities for each development have been required by municipal, county, and state agencies. These facilities typically include vegetated swales, underground stormwater piping, and detention basins. West Windsor Township has responsibility for maintenance of many of the detention basins in residential neighborhoods. Funding is provided by annuities established by developers prior to transferring ownership of open space areas to the Township.

Neither the frequency nor magnitude of flood events in West Windsor Township has changed to a noticeable degree during the past twenty-year period of significant land development. The use of best management practices including prohibition of construction within floodplains must be continued.

Groundwater Recharge

Groundwater recharge is necessary to resupply the aquifers from which potable water wells draw. The characteristics and magnitude of groundwater recharge is dependent on many factors. Land development (including farming) can substantially impact groundwater recharge. Residential and commercial development thwarts recharge by covering the soil, compacting the soil, and piping away runoff. These negative impacts can be substantially mitigated by appropriate zoning and implementation of best management practices.

Water quality

Unrestricted runoff from developed sites transports contaminants into environmentally sensitive areas and watercourses. Again, negative impacts can be mitigated by best management practices. Water quality is enhanced by detention basins because the discharge is slowed and silt and oils are settled out before they enter surface water or groundwater.

SECTION VI - UTILITIES PLAN ELEMENT

Telecommunications

If new telecommunications facilities are required they should be co-located on existing towers such as utility towers. If a new tower or monopole is necessary because of radio frequency requirements, it should be capable of accommodating additional carriers so as to limit the number of towers within West Windsor.

RECOMMENDATIONS

General Utility Systems

1. Encourage cost effective extensions of utilities by private property owners through fair share cost reimbursement agreements.
2. Require new development to pay its proportionate share of any off-tract improvements for utility services, to the extent permitted by law.
3. Require existing above ground utilities to be relocated underground for redevelopment projects to the extent allowed by law
4. Require co-location of new telecommunications facilities whenever feasible.

Wastewater

5. Based on the adopted Master Plan and resulting zoning, identify the required conveyance and treatment capacity in order to determine future facility requirements.
6. Identify facility requirements and potential schedule for any unsewered “fringe” neighborhoods, e.g. Conover Road, to facilitate efficient use of private funds.
7. Monitor inflow and infiltration in West Windsor Township and encourage SBRSA municipalities to repair their collection systems to allow efficient utilization of existing wastewater treatment facilities.
8. The Township Sanitary Sewer Plan should be updated to deal with areas of potential septic failure.
9. Require that new development within the sewer service area be served by sewer, and all new development should be served by public water.

Water Supply

10. Identify water supply demand at buildout and confirm capacity availability with Elizabethtown Water Company.
11. Identify developed areas which do not have public water and encourage system extension
12. Where possible, require public water service to new development rather than private wells.

SECTION VI - UTILITIES PLAN ELEMENT

Stormwater Management

13. Identify feasible solutions to flooding on existing roads including but not limited to: Penn Lyle Road and North Post Road at Duck Pond Run; Meadow Road, Washington Road, Bear Brook Road, and Alexander Road at Little Bear Brook; Clarksville Road at Wyeth (Cyanamid); Clarksville Road at Grovers Mill Pond.
14. Amend Township ordinances to conform to the adopted Master Plan, and the RSIS, and require best management practices.
15. Encourage planting in the bottom of stormwater detention basins to enhance water quality and basin appearance.
16. Encourage ground water recharge through the use of porous pavement, reduced impervious coverage and other appropriate infiltration techniques



