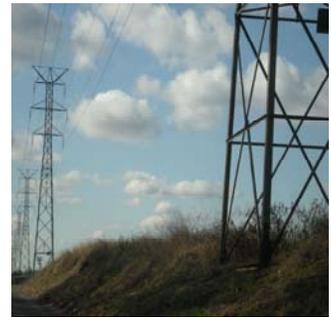


# UTILITY SERVICE PLAN



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- E. Individual Subsurface Sewage Disposal Facilities Management Program
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- G. Wireless Telecommunications Facilities
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## X. UTILITY SERVICE PLAN ELEMENT

### A. Introduction

The Utility Service Plan Element analyzes the need for and shows the future general location of water supply and distribution facilities, drainage and flood control facilities, sewerage and waste treatment, solid waste disposal and provision for other related utilities, wireless telecommunication facilities, and includes a storm water management plan section as required pursuant to the provisions of N.J.A.C. 7: 14A-25 Municipal Stormwater Regulations.

### B. Water Supply

Plainsboro Township is located within the New Jersey American Water Company franchise area. The long-term availability of water is not seen as a problem because American Water utilizes surface water for 95% of its supply. In 2006, the available water supply for their entire system was at 145 million gallons per day from the D & R Canal, Spruce Run and the Round Valley reservoirs, in addition to at least 140 existing wells located within the franchise area. Two (2) treatment plants are in use by the Company. The first and largest is a 155 million gallon a day facility and the second is a 60 million gallon a day facility, neither of which are located in the Township. The smaller of the two is currently being considered for expansion to 80 million gallons a day. Over the years the American Water Company has shown an interest in securing well sites within the Township near Merrill Lynch, the Princeton Forrestal Village, and other properties in addition to testing water in the man-made lake within the R-350 zone to supplement anticipated surface water volumes. The Company provides water service to approximately 208,700 customers.

Plainsboro Township is located in the 321' HGL pressure gradient zone of the water company. The area served by this zone includes Montgomery Township, Princeton Township, Princeton Borough, West Windsor Township, Plainsboro Township, Franklin Township, South Brunswick Township, Lawrence Township, Cranbury Township and the Village of Cranbury. In addition, this zone has an interconnection with



**Standpipe**

the Jamesburg water system.

This zone serves the Lawrenceville Water Company and municipal water systems in South Brunswick and Monroe Township through meter connections, and has emergency interconnections to the City of Trenton along the Princeton Pike. South Brunswick Township is served through a meter connection in Route One and through the Scotts Corner Road Booster Station. Monroe Township is served through a meter connection on Prospect Plains Road. The Lawrenceville Water Company is served through a meter connection on Laurel Wood Drive.

Storage is provided by five (5) storage facilities. Two (2) of these tanks are on Route 206 in Princeton Township, each with a capacity of 7,000,000 gallons, two (2) others are also in Princeton Township, the Mount Lucas tank and the Terhune elevated tank with a capacity of 3,000,000 gallons and 500,000 gallons, respectively. The fifth tank is a 1,500,000 gallon hydro pillar in Cranbury.

This zone receives its water supply from zone 273' HGL through the Montgomery Knoll and Montgomery II Booster stations and from a variety of well fields. Zone 321' HGL receives water supply from zone 273' HGL, from the following:

<b>Facility</b>	<b>Capacity</b>	<b>Firm Capacity</b>
Montgomery II Booster Station	20.20 mgd.	15.10 mgd
Montgomery Knoll Booster Station	25.35 mgd	19.60 mgd.
Stony Brook Well Field	1.24 mgd.	1.24 mgd.
Jefferson Park Well Field	1.64 mgd.	1.64 mgd.
<b>TOTAL</b>	<b>48.43 mgd.</b>	<b>37.58 mgd.</b>

The American Water Company service area is shown on **Figure 22: Existing and Future Water Service Areas Map**. The existing service areas includes the Princeton Forrestal Center and other Route 1 corridor developments, major residential and mixed-use projects, the Princeton Forrestal Village, Princeton Collection development, and all existing school sites.

The American Water Company system that serves the PFC is comprised of interconnected looped water mains with sizes ranging from 8" to 24".

PFC plans indicate an existing 16" water main which runs along the east side of Route 1 from Plainsboro Road to College Road through the middle of the PFC. That portion of PFC east of Route 1 is served by two major water main loops. The first loop is comprised of 12" water main which runs along College Road East from Route 1 to the vicinity of 600 College Road East, where it changes to a 16" water main. The 16" water main continues to Scudders Mill Road with two (2) 12" interconnects out to Schalks Crossing Road. From Scudders Mill Road, the 16" line traverses the Merrill Lynch complex with an interconnection to an existing 16" water main within Plainsboro Road. As the Merrill Lynch project develops, a second connection point to Plainsboro Road will be constructed opposite Firmenich. Secondary loops have been created off of the primary College Road East loop system to serve the majority of the 582.6 acres of office research lands.



# Township of PLAINSBORO

Middlesex County, New Jersey

## EXISTING AND FUTURE WATER SERVICE AREAS

April 2008

### WATER FRANCHISE AREA

Entire Municipality is part of New Jersey  
American Water (NJAW) Franchise Area

### WATER SERVICE AREA

Water Service Areas (Status, Provider)

- Existing, NJAW
- Future, NJAW

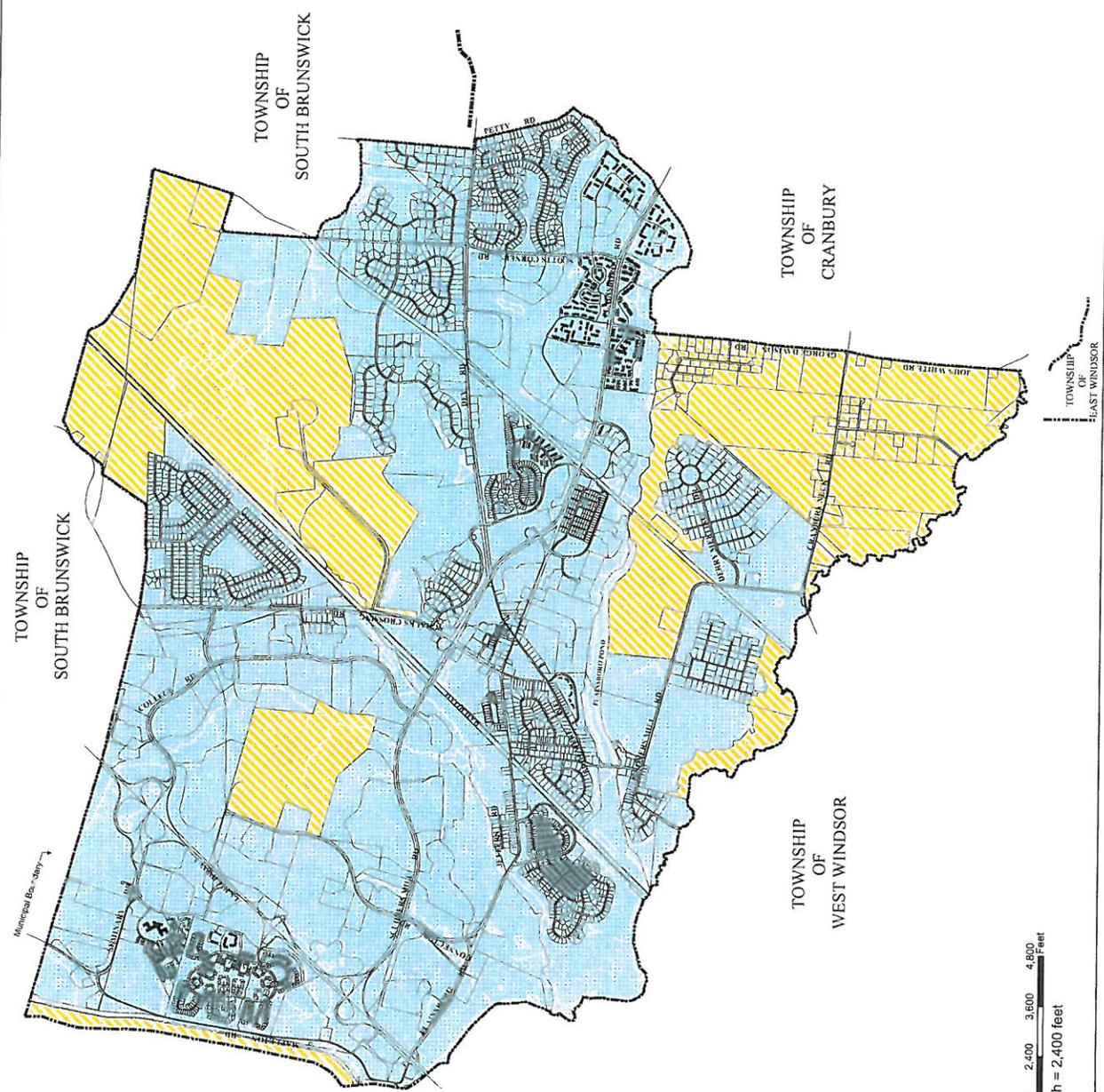


Figure 22

Prepared By:  
  
**David J. Samuel, P.E.**  
 Township Engineer

TOWNSHIP OF  
PRINCETON

A second major loop which serves the eastern portion of PFC, originates at Route 1 and traverses through the Forrestal Campus to and through the Bristol-Myers Squibb (BMS) site. The second loop is comprised of 12" and 24" lines which cross Scudders Mill Road at BMS and interconnect with the College Road East/Merrill Lynch major loop system. A separate 12" main connected to the 16" main along Route 1 serves the Princeton Plasma Physics Laboratory. A 12" water main crossing exists on Scudders Mill Road near the Plainsboro Connector Road for future use.

The Princeton Forrestal Village, located west of Route 1, is currently served by a 24" water main which runs along Mapleton Road to Seminary Drive where it turns and interconnects to the 16" line running along Route 1. The Princeton Landing residential site is served by internal water main loops which interconnect to a 12" water line interconnected to both College Road West and Route 1. The Windrows at Princeton Forrestal is served by an internal 12" water main loop connected to the existing water mains in Seminary Drive and College Road West.



**Fire Hydrant**

PFC plans indicate potential future connection points to the existing American Water system which could be utilized to serve the underdeveloped portions of the PFC. As each parcel is developed, the American Water Company will provide adequate potable water service and fire protection in conformance with applicable regulatory requirements.

The undeveloped parcels remaining along College Road East and Research Way will be serviced by the existing American Water lines which run along these roads.

Forrestal Campus, which comprises the majority of the undeveloped land east of Route 1, will be served by interconnection to the water main stubs provided by American Water along the existing 24" line which runs from Route 1 to BMS. The water system indicates potential connection points to the existing 24" system.

The Princeton Nurseries, located on the western side of Route 1, will receive water service by interconnection to the existing 24" water mains which run along Mapleton Road and Seminary Drive as well as 16" water line running along Route 1.

Village South, located between Princeton Landing and Route 1, is served by the existing 12" water main loop which parallels Route 1 from the Princeton Forrestal Village to Sayre Drive.

The current development of the Hotel Site located at Mapleton Road and Route 1 utilizes the existing 12" waterline that connects to the existing 16" waterline along Route 1.

The water system west of the railroad tracks services all existing development patterns located within the Dey road and Plainsboro Road corridors.

C. Stormwater Management

The Township Stormwater Management Plan documents the strategy for the Township to address stormwater-related impacts. The creation of this plan is required by N.J.A.C. 7:14A-25 Municipal Stormwater Regulations. This plan contains all of the required elements described in N.J.A.C. 7:8 Stormwater Management Rules. The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development, generally defined as projects that disturb one or more acre of land. These standards are intended to minimize the adverse impact of stormwater runoff on water quality, water quantity and the loss of groundwater recharge that provides base-flow in receiving water bodies. This subsection has been amended to indicate that the goals have been met per the Statewide Basic Requirements that have been implemented by the Township via the Tier A Municipal Stormwater Master General Permit (NJDES #NJG0152391, P.I.I.D. #208518)

The plan addresses long-term operation and maintenance measures for existing and future stormwater facilities. The final component of the plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater measures are identified to lessen the impact of existing development. Township stormwater management goals are identified on Table 20.



**Stormwater Detention Basin**

The Stormwater Management Plan was prepared by the Township Engineer and is entitled: "Municipal Stormwater Management Plan for the Township of Plainsboro, Middlesex County, New Jersey" and dated April 2005 and revised January 2007. The Plan was adopted by the Planning Board as an amendment to this Utility Service Plan Element.

In order to implement the Township stormwater management plan the Township is encouraged to adopt a comprehensive list of identified proposed ordinances that implement stormwater management requirements and controls by

way of amending Chapter 85 of the Township Code entitled: "Subdivision and Site Plan Review". Specifically, Section 85-32, Drainage, has already been amended by adding a new Section 85-28.1 entitled: "Stormwater Management".

The purpose of the ordinance which implements the plan is to establish minimum stormwater management requirements and controls for major development and to reduce the amount of non-point source pollution entering surface and ground waters. This ordinance guides new development in a manner that is proactive and minimizes harmful impacts to natural resources. Specifically, the ordinance will:

1. Reduce flood damage to protect public health, life and property.
2. Minimize increased stormwater runoff rates and volumes.
3. Minimize the deterioration of existing structures that would result from increased rates of stormwater runoff.
4. Induce water recharge into the ground whenever suitable infiltration, soil permeability, and favorable geological conditions exist.
5. Prevent an increase in non-point source pollution
6. Maintain the integrity and stability of stream channels and buffers for their ecological functions, as well as for drainage, the conveyance of floodwater, and other purposes.
7. Control and minimize soil erosion and transport of sediment.
8. Minimize public safety hazards at any stormwater detention facility constructed pursuant to subdivision or site plan approval.
9. Maintain adequate base-flow and natural flow regimes in all streams and other surface water bodies to protect the aquatic ecosystem.
10. Protect all surface water resources from degradation.
11. Protect ground water resources from degradation and diminution; and
12. Ensure that any additional  $\frac{1}{4}$  acre of impervious surface complies with this ordinance.

The Township plan and implementing ordinances will be coordinated with Freehold Soil Conservation District, Mosquito Control Commission, adjacent municipal plans; D&R Canal Commission, and applicable state and federal rules, regulations and statutes.

This Plan Element has been amended to address the goals per the Statewide Basic Requirements that have been implemented by the Township via Tier A Municipal Stormwater Master General Permit (NJPDES #NJG0152391, P.I.I.D. #208518).

## Table 20 Stormwater Management Goals

- Slow rate of runoff/increase time of concentration.  
  
By allowing runoff to slowly move through vegetated swales and landscaped areas rather than traditional pipes.
- Reduce Volume of runoff.  
  
By lowering the post development runoff curve number (CN). The runoff potential for a site is characterized by the runoff curve number (CN). Limiting the percentage of impervious with green roofs and pervious alternatives along with increasing the time of concentration, works together to achieve this.
- Provide recharge throughout development.  
  
By integrating infiltration techniques and opportunities to allow runoff to be captured and recharged to groundwater within the development footprint, minimizing the loss of pre-development recharge capacity.
- Provide stormwater treatment close to source.  
  
By providing small scale treatment opportunities within, i.e. landscaped islands, parking lots, medians, curb lines, parking lanes, right-of-ways, creating a treatment train.
- Integrate stormwater management within open space features.  
  
By utilizing open space features such as parks, right-of-ways, open fields, market places and landscape areas for the dual purpose of stormwater storage, treatment and conveyance.
- Incorporate low impact development techniques for aesthetics as well as function.  
  
By utilizing such options as decorative permeable pavers, stormwater planters, rain gardens and ponds.
- Reduce impervious surfaces.  
  
By utilizing alternative treatments such as porous paving/concrete, permeable pavers, green roofs or reductions, such as islands.
- Integrate natural conveyance with traditional pipe conveyance.  
  
By utilizing techniques such as bioswales, stormwater planters, vegetated swales to convey storm flows with large storm overflow to traditional piped systems.
- Disconnect impervious surface flow.  
  
By redirecting roof runoff to grass swales, infiltration systems, bioretention systems, landscaped areas or rain barrels and directing paved surfaces to these pervious options as well.
- Increase vegetation within dense urban environment.  
  
By providing dual purpose landscaping features within medians, traffic calming bumpouts, pedestrian walkways, parking lots, roof tops and lots.
- Balance design with ecological function.  
  
By managing stormwater runoff as a resource utilizing low impact development techniques within the urban environment that mimic a site's pre-development hydrology and ecology.

D. Sewage and Waste Treatment

Existing development in Plainsboro Township are presently being serviced by either the Stony Brook Regional Sewerage Authority (SBRSA) waste water treatment plant located in Princeton Township or the United Water Princeton Meadows (UWPM) plant located off of Maple Avenue, adjacent to the railroad tracks in Plainsboro Township. The SBRSA provides service to the Township through existing lines in South Brunswick Township.



**Pump Station**

Currently, unless otherwise designated, Plainsboro Township is within the sewer district of the Middlesex County Utilities Authority (MCUA). The MCUA does not provide sewer service to any lands within Plainsboro Township. However, the MCUA has stated that because portions of Plainsboro Township are included in the Authority's sewer service area, they have considered the potential flows to be generated from these areas in their planning process.

Sanitary sewer service is provided to lands of Plainsboro Township via either the SBRSA, the United Water Princeton Meadows, privately owned wastewater treatment plants, or individual subsurface sewage disposal facilities. In general, the SBRSA's sewer service area is to the west of the Amtrak right-of-way and the UWPM's sewer service area is to the east of the Amtrak right-of-way. The Stony Brook Regional Sewerage Authority (via South Brunswick Township) and the UWPM wastewater sewer service areas have been established and amended from time to time with the approval of the Middlesex County Utilities Authority. The Township is currently involved with the County Utilities Authority and the County Planning Board in the updating of the Lower Raritan-Middlesex County Wastewater Management Plan.

The SBRSA was established in 1971. SBRSA operates three treatment plants and three regional pumping stations. The River Road Treatment plant is currently rated for 13.06 million gallons a day. The Pennington and Hopewell Treatment plants are located in Pennington Borough and Hopewell Borough respectively, are each rated for 0.30 million gallons a day. The three treatment plants, along with 49 employees provide sewage treatment service to six municipalities in Mercer and Middlesex Counties with a combined population totaling 80,000. In addition, SBRSA operates two multi-hearth sludge incinerators and provides sludge disposal services for other municipalities.

Sanitary sewer service is provided through a franchise agreement with the Township of South Brunswick dated December 23, 1974. This agreement was supplemented on December 19, 1975 and amended by two separate agreements dated September 21, 1982 and September 1, 1987. South Brunswick Township is a member municipality of the Stony Brook Regional Sewerage Authority (SBRSA), whose sewer service area within Plainsboro

Township is delineated to include most of the lands in Plainsboro Township situated to the west of the Amtrak right-of-way, including all of the PFC. In accordance with these agreements, South Brunswick is responsible for the conveyance of the wastewater generated from the Princeton Forrestal Center to the Authority's River Road Wastewater Treatment Plant for final treatment and disposal. Wastewater within the PFC area is presently collected in gravity, sewer pipes and is conveyed either to the north to the abandoned South Brunswick Township Pumping Station No. 6 or to the south to a metering chamber located northeast of the intersection of the Millstone River and U.S. Route 1.

The wastewater generated from the Robert Wood Johnson Foundation to the 300 series of buildings on College Road East, along with the wastewater flows from the Princeton Plasma Physics Laboratory (PPPL) and Princeton Forrestal Village, is conveyed to the abandoned South Brunswick Pumping Station No. 6. The 1996 construction of the Harry's Brook Trunk Sewer eliminated the then existing South Brunswick Pumping Station No. 6. The Harry's Brook Trunk, a 24" and 30" gravity sewer line, traverses the Princeton Nursery property and discharges into existing South Brunswick Township sanitary sewer facilities along Ridge Road. This trunk line was sized to handle the wastewater flows from Pumping Station No. 6 as well as from the undeveloped northern portion of the Forrestal Campus. In addition, the US Homes Residential development is serviced by the Harry's Brook Trunk with flows conveyed to the trunk line via gravity sewer lines would serve the buildings on College Road East, after initially flowing through the residential area's pumping station.

Southerly wastewater flows are conveyed via two major systems. The first system comprises the remainder of College Road East, Research Way, the Bristol-Myers Squibb (BMS) site, and Merrill Lynch. These areas are serviced via an 18" gravity line which runs through the Merrill Lunch site to Plainsboro Road and into a 24" gravity sewer line which runs along Plainsboro Road and then through the FMC property along the Millstone River. There is also a gravity sewer line which runs from BMS down to the 24" gravity sewer along Plainsboro Road. This sewer was constructed in order to accommodate the anticipated wastewater flows of the three remaining buildings to be built on that site. The second subsystem of the southern sewer system serves most of the lands to the west of Route 1 and the Forrestal Campus. St. Joseph's College and Princeton Landing are serviced via gravity lines which run to the Mapleton Road Pumping Station. In addition, a pump station serves the Millstone Apartments which discharges that wastewater to the Mapleton Road Pumping Station. Wastewater is then pumped from the Mapleton Road Pumping Station, via force main, under U.S. Route 1 to a 15" gravity sewer which provides service to the Forrestal Campus and then runs in a southerly direction down the Connector Road to Plainsboro Road and discharges into the previously mentioned 24" gravity sewer line. The remaining buildings on the Forrestal Campus, excluding PPPL, are serviced via an 8" gravity line which discharges into the previously referenced 15" gravity sewer.

A portion of the Plainsboro flow is metered through the Princeton Forrestal Meter Chamber, however there is also a portion of Plainsboro that flows directly to the South Brunswick Pumping Station which is not metered separately by SBRSA.

The facilities owned and operated by SBRSA within Middlesex County includes the South Brunswick Pumping Station, South Brunswick Force main, a portion of the Millstone Force main and Princeton Forrestal Meter Chamber.

Currently there is a total of 476,359 gallons per day (gpd) of approved (committed but not connected) flow from South Brunswick and Plainsboro. The commitment of flow allocation is on a first come first serve basis. All projects that are greater than 2,000 gpd are submitted to SBRSA for review. Projects greater than 8,000 gpd also go through the NJDEP TWA process. These projects are then included on SBRSA's list of committed/approved projects and flow is allocated to that project/municipality. The "projected" flows are removed from the list and allocated flow totals as the projects are connected to the system.

Each of SBRSA's participant flows are metered and each participant is charged for operation, maintenance and all debt service costs based on their percent of the total actual flow. There is no charge for an allocation of remaining capacity.

With respect to future development, the Princeton Nurseries will be serviced through the Harry's Brook Trunk, which is shown on the plan as a 24" and 30" gravity sewer line traversing the Princeton Nurseries, and was designed to accommodate the development of the Princeton Nurseries site as well as eliminate eh South Brunswick Pumping Station No. 6. With respect to western portion of Princeton Nurseries, there is also shown a proposed gravity sewer line which will carry wastewater flow from this area in a northerly direction into the existing South Brunswick gravity sewer facilities.

With respect to the southern portions of PFC, the existing sanitary sewer lines along College Road East and along Plainsboro Road and through the FMC property have sufficient capacity to accommodate the expected future development on College Road East and Research Way. With respect to the Forrestal Campus, the 15" gravity sewer line will provide service to the southern portion of the Forrestal Campus. With respect to the northern portion of the Forrestal Campus, a line would have to be extended in order to serve these lands. With respect to the lands to the west of U.S. Route 1, sewer lines were extended in 1988 to the West and South Campuses of Princeton Forrestal Village. The Windrows at Princeton Forrestal is now connected to these lines and Village South will be in the future. These lines would then convey the wastewater flow from these sites through the existing facilities within Princeton Landing to the Mapleton Road Pumping Station. As previously discussed under the existing facilities, the pumping station which conveys the wastewater from the Millstone Apartments to the Mapleton Road pumping station was previously used to service the Holiday Inn-Princeton site until 1990 when the hotel closed. The same pumping station and associated facilities is providing service for wastewater flows generated from the Hotel Site.

The existing UWPM plant, which is a public utility regulated by the State Public Utilities Commission, was constructed primarily to service the PCD zone which was ultimately to accommodate nearly 1.0 million square feet of commercial, office and light manufacturing space; and 6,500 dwelling units. The UWPM has a rated capacity of 1.64 million gallons per day. In 2002 the Planning Board approved a site plan application for the plant which resulted in the construction of

a 377,000 gallon concrete flow equalization basin that increased rated capacity from 1.5 million gallons per day to the present level. The expanded wastewater treatment capacity was needed for adequate treatment of remaining Village area homes that were served by septic systems and for new development purposes.

Future sewer service areas reflect the Township's desire to promote an infill development pattern rather than encouraging undesirable suburban sprawl which would introduce sewer services to large lot residential, agricultural, and open space areas.

Table 21: Sewer Flow Allocation Summary provides information relative to UWPM services area as of 2007.

With respect to future planning, construction and/or operation of wastewater treatment and conveyance facilities (pump stations, trunk lines and collector lines, and/or other facilities requiring Treatment Works Approval or co-permittees):

1. The Township of South Brunswick is responsible for the facilities within that portion of the Township which is within the sewer service area of the Stony Brook Regional Sewerage Authority.
2. The UWPM is responsible for the facilities within that portion of the Township which is within the sewer service area of the UWPM
3. The Township of Plainsboro is responsible for the facilities within that portion of the Township which is within the sewer service area of the Middlesex County Utilities Authority.

At such time as the Middlesex County Utilities Authority has extended sewer service into this portion of the Township, the MCUA will be responsible for their facilities.

Other treatment plants within Plainsboro Township, as identified by the NJ DEP, are indicated on **Figure 23: Existing and Future Sewer Service Areas Map**. The Firmenich Sewage Treatment Plant is located just off of Plainsboro Road on the 37.564 acre Firmenich site. With respect to this plant, it is currently envisioned that this facility will continue to operate and discharge via spray irrigation and surface water discharge to the Millstone River in accordance with state regulations. Firmenich is in the process of planning for the expansion of its existing office, laboratory and manufacturing operations.

The Firmenich plant includes sludge drying beds, contact stabilization unit, mix activated sludge tanks, an equalization basin, sludge holding tank and a maintenance building. Current flows to the plant total 18,100 gallons per day. Future flows from Building "N" and from manufacturing buildings are anticipated to be 10,225 gallons per day. Total permitted flow to the plant is 36,000 gallons per day.

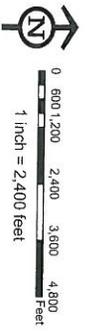
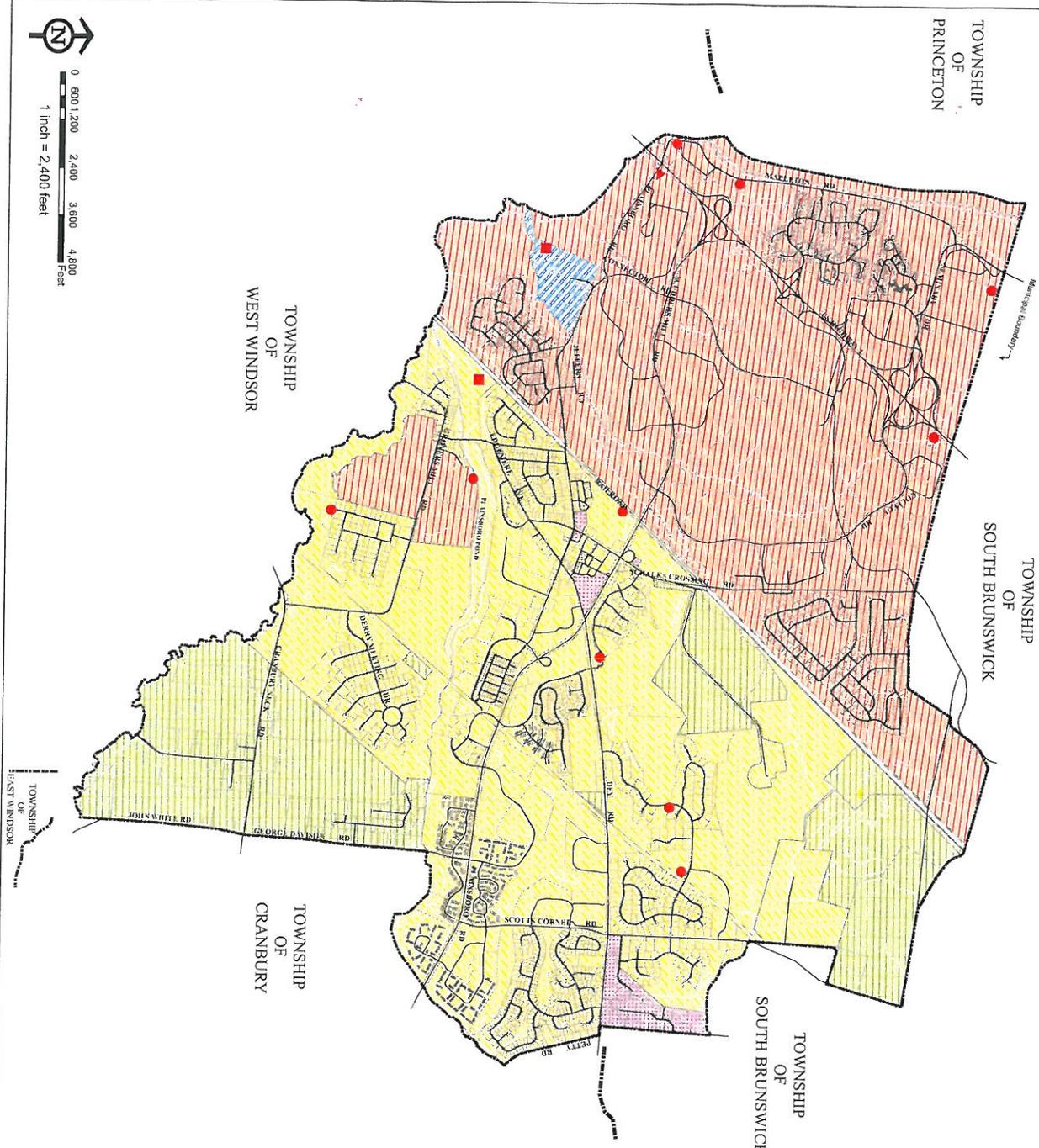
TOWNSHIP OF PRINCETON

TOWNSHIP OF SOUTH BRUNSWICK

TOWNSHIP OF SOUTH BRUNSWICK

TOWNSHIP OF WEST WINDSOR

TOWNSHIP OF CRANBURY



**Township of PLAINSBORO**  
Middlesex County, New Jersey

**EXISTING AND FUTURE SEWER SERVICE AREAS**

April 2008

- Existing Sewerage Facilities**
- Wastewater Treatment Plant
  - Pumping Station
  - ▲ Meter Chamber
- Sewer Service Areas (Status, Provider)**
- Existing, SBRSA Service Area
  - Existing, UWPM Service Area
  - Existing, MCUA Service Area
  - Existing, Firmsnich Service Area
  - Future, UWPM Service Area - Currently, MCUA Service Area

**Figure 23**

Prepared By:  
**David J. Samuel, P.E.**  
Township Engineer

**Table 21 Sewer Flow Allocation Summary**  
Provides information relative to the UWPM Service Area 2007

Site	Block	Lot	Existing Committed Flow (GDP) As Per UWPM 10/27/06	Anticipated Future Needed Flow (Priority Projects) (GPD)	Anticipated Future Need Flow (Long Range Projects) (GDP)	
Princeton Meadows Office Park (Office Center 4) *	3301	19,20	2,200			
Villa's & Highlands at Cranbury Brook (TWA 02-0039)*			26500			
Township Dey Road Parcel (30.7 ac @ 11un/ac=337 units)***	1304	1				81,500
Princeton Alliance Church (1200 seats + day care)*	1401	3	5,000			
Plainsboro Library (3 floors with partial basement)**	1404	440	4,300			
Village Center (TWA 04-0163)*	1404	4.01	14,700			
Village Center Amended – new bldg 10(comm./office), amended bldg 11 (comm./office), amended bldg 12 (comm./apts), future corner bldg (comm./off)***	1404	4.01		5,100		
VR-1 (TWA 03-0441)*			4,700			
Queenship of Mary Mission (600 seats + day care) ***	1404	17				2,500
PNC Bank (proposed 4400 sq ft)(allowable 26,570sqft)***	1508	7				2657
Habibian (R-85 exist office 4800sqft)(future VC 4000 sqft)	1404	2				1200
Constantini (T-85 exist office)(future VC 4000 sqft)	1404	2				480
SU (3236sf)(Commercial )	1404	26				324
Plainsboro Hardware (7193sf)(Commercial)	2002	3				720
Palumbo (R-300 residential ) 5.375 ac (4 Homes)	1205	14				1200
Schalk's Crossing Road (R-300 residential) 0.87 ac (1 home)	1401	4				300
Dey Road (12 homes)	1301	38, 39				3600
	1303	38, 40				
	1205	17-19, 23				
	1304	2-5				
Petty Homes (3 Homes)	2804	10,34, 56				900
Brentwood Lane (14 Homes)	1101	40-43,45-54				4200
Brookside Court (26 Homes)	1101	56-69				7,800
	1101	71-75				
	1101	77-82				
Scotts Corner Road	1101	2-8				2,700
	1102	3				
	1201	12				
Luther (1 Home)***	1503	7				300
Lickteig (1Home)	1901	8				300
Rauh (1 Home)	1902	11				300
Schaefer (1 Home)	2002	14				300
Walker Gordon Lab (1 Home)	2001	31				300
<b>TOTALS</b>			57,400	5,100	111,231	173,731
<b>Highlighted Areas are Properties shown on UWP Franchise Map as currently not in Franchise Area</b>					26,961	

\* Figures furnished by UWPM through 10/27/06  
 \*\* Represents Estimated Flows Based upon Current Development Proposals  
 \*\*\* Needed flows may be higher subject to further review of proposed development

E. Individual Subsurface Sewage Disposal Facilities Management Program

The siting, design, construction, operation and maintenance of individual subsurface sewage disposal facilities, such as septic systems, are currently under the jurisdiction of the Middlesex County Board of Health. Currently, enforcement is shared by the Board of Health and the Township Engineer pursuant to Plainsboro Township Ordinance and NJ DEP pursuant to Chapter 199 of NJ State Sewage Disposal Code.

Current data indicates that there are no existing individual subsurface sewage disposal facilities which are outside of the proposed sewer service areas that are experiencing significant individual subsurface sewage disposal facilities operational problems.

F. Solid Waste Disposal

The Township addresses solid waste management issues through the Middlesex County Division of Solid Waste Management and the County Utilities Authority. The updated Middlesex County Solid Waste Management Plan dated May 16, 2006 addresses current data on waste quantities and projections, includes the revised county recycling plan, and adopts a recycling goal of at least 50% of the current year's municipal waste stream and at least 60% of the total waste stream as approved by NJDEP. The Division of Solid Waste is responsible for preparing the County Solid Waste Management Plan which addresses facilities, recycling, transportation routes, costs, etc., while the Utilities Authority is responsible for the Middlesex County Landfill.

The Middlesex County Landfill opened on February 5, 1992 after six-months of intensive construction preparing the initial cells for solid waste. The Landfill initially had three cells, each with its own double-liner system, leachate collection and secondary detection system. The Landfill features a state-of-the-art double liner system, which has a maximum permeability of  $1.0 \times 10^{-7}$  cm/sec (meaning 1 inch of water may seep through every 30 years). It also consists of 60 ml high-density polyethylene liner, 18 inches of filter sand, and 80 ml high-density polyethylene liner, drainage net, a filter fabric and 18 more inches of filter sand. Additional cells were constructed bringing the total number to six cells.

The Landfill also has a leak detection system between the liners and leachate collection system on top of the 80 ml liner that collects rainwater permeating the landfill or liquid from any biodegradation taking place in the Landfill. This leachate is pumped into the MCUA trunk line and transported to the Wastewater Treatment Plant in Sayreville.

In addition, systems are in place to collect methane gas formed by biodegradation in the Landfill, so this greenhouse gas can be collected before re-entering the atmosphere and put to beneficial use. This gas is collected using a combination of vertical and horizontal gas wells spaced approximately every 200 feet across the surface of the Landfill. The gas is then transmitted through a

processing skid where it is recycled as fuel for the electrical power generation facility.

The area where waste is placed is called “workface”. As the solid waste is tipped it is compacted to conserve space. At the end of each day, approximately six inches of cover material is placed and compacted on top of nine-inches on side slopes of the solid waste. If the area is not used again for 24 hours, a twelve-inch additional layer of cover material is added. In addition to soil, recycled products are used for daily intermediate cover.



**Conservation Center**

Each person in Middlesex County generates approximately 11 lbs. of waste each day, which amounts to 4000 lbs. per person, per year. Based on averages during calendar year 2005, every day approximately 335 trucks transport approximately 2,350 tons of garbage into the Landfill. This equates to over 720,000 tons of solid waste every year. The trucks are weighed at the scale facility as they enter the Landfill for revenue and waste tracking purposes. Only trucks registered with the NJDEP and carrying solid waste collected in Middlesex County’s 25 towns are permitted to dispose solid waste at Middlesex County Landfill.

Based on Middlesex County’s population, recycling efforts, and market trends, it is anticipated that the Middlesex County Landfill will be able to accept 20 million cubic yards of solid waste for disposal, operating beyond 2015. The Middlesex County Landfill will cover over 300 acres of land and reach its permitted maximum height of 165 feet above sea level. To prevent degradation of the surrounding environment, protective barriers such as landfill liners, layers of cover material, and a protective cap are implemented to seal-off the inactive cells. These barriers naturally control potential releases from the landfill. Once the Landfill is capped the MCUA will continue monitoring the site for 30 years.

The following are the important elements of the County Solid Waste Management Plan:

1. Waste reduction, i.e. changes in manufacturing and packaging, expanded use of recycled newsprint.
2. Recycling.
3. Waste diversion, i.e. re-processing of waste wood, concrete and large tree parts; tree and brush trimmings, leaf and grass composting.
4. Landfill.
5. Diversion of materials, i.e. collecting household hazardous waste, recover old care tires, etc.

6. "Selective" incineration.
7. Long-haul transportation to out-of-state facilities in the event landfill capacity is lost.

This Master Plan supports the county solid waste management plan except for any proposal to locate and develop a landfill or incinerator within the Township or neighboring municipalities which would compromise the integrity of agricultural activities, threaten environmentally sensitive features, or negatively impact the local roadway network.

G. Wireless Telecommunications Facilities

In order to promote competition in the wireless telecommunications industry, Congress enacted the Telecommunications Act of 1996. The Telecommunications Act of 1996 ("TCA") is the federal law which governs the regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government. Specifically, the TCA, 47 U.S.C. § 332©(7)(B) provides in part:

1. The regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof; shall not unreasonably discriminate among providers of functionally equivalent services; and shall not prohibit or have the effect of prohibiting the provision of personal wireless services.



**Wireless Co-location**

2. Any State or local government or instrumentality thereof shall act on any request for authorization to place, construct or modify personal wireless service facilities within a reasonable period of time after the request is duly filed with such government or instrumentality, taking into account the nature and scope of such request.
3. Any decision by a State or local government or instrumentality thereof to deny a request to place, construct, or modify personal wireless service facilities shall be in writing and supported by substantial evidence contained in a written record.

4. No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions.
5. Any person adversely affected by any final action or failure to act by a State or local government or any instrumentality thereof that is inconsistent with this subparagraph may, within 30 days after such action or failure to act, commence an action in any court of competent jurisdiction. The court shall hear and decide such action on an expedited basis. Any person adversely affected by an act or failure to act by a State or local government or any instrumentality thereof that is inconsistent with clause 4, may petition the Commission for relief.

The TCA further provides at § 253(a):

"No State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service."

As relates to the TCA, first and foremost, the Master Plan seeks to encourage wherever possible the continued co-location of telecommunication antennas on existing nonresidential buildings and structures in the Township, including existing telecommunications tower structures. Secondly, the Plan attempts to limit the number of new telecommunications facilities in the Township by requiring a comprehensive approach to the siting of all new facilities by the telecommunications carriers (i.e., AT&T, Cingular, Nextel, Verizon). Thirdly, the Plan tries to keep applications for such facilities before the Planning Board (i.e., site plan applications), as opposed to their being relegated to the Zoning Board because of the need for a Use Variance. In an effort to do this, however, some decisions needed to be made regarding where in the Township such facilities should be permitted subject to meeting certain standards, versus where they should be expressly prohibited.

Specifically, the Township's new telecommunications ordinance will permit such facilities in the R-95, R-100, R-150, I-100 and GB Zones, as well as the nonresidential portions of lands zoned PCD and PMUD. On the other hand, the ordinance prohibits them in the R-85, R-90, R-200, R-300, R-350, VR-1, VR-2, VC, SR, NB, OB-1, Cemetery, and ECA-Educational and Cultural Arts Zones. Realize that wherever such facilities are not permitted, a Use Variance to the Zoning Board would be required and could be sought by a telecommunications carrier.

To minimize applications before the Zoning Board, a special effort was made to identify the areas of zoning districts where such facilities should be prohibited because of the character of the area involved and lack of opportunities in such

areas, thereby making it unlikely that a Use Variance would be sought. See the attached: **Figure 24: Telecommunications Facilities Map** showing the location of existing facilities in the Township.

H. Electric Power, Gas and Telecommunications

Public Service Electric and Gas Company (PSE&G) currently provides electrical power and gas services to the Township. As individual sites develop, PSE&G will extend their facilities to provide the required service to each site.

Verizon currently provides telephone service to the Township. In addition, other telecommunication providers, such as AT&T, and Teleport Communications Group, provide fiber optic services to various buildings throughout the Township and surrounding areas.

As the Township develops, the appropriate utility company will provide electric power, gas, and telecommunication services. The utility company or the individual site developers, will fund the cost of new facilities, and will be determined by the utility company's policy in place at the time of construction. Consistent with current practices, the Township is responsible for electrical usage charges for streetlights that may be installed to serve public roadways dedicated to the Township.



**Power Line**

I. Action Plan

1. The Township should utilize the most recent update of the Residential Site Improvement Standards (RSIS) in the stormwater management review of residential areas.
2. The Township's Stormwater Control Ordinance should require all new development and redevelopment plans to comply with New Jersey's Soil Erosion and sediment Control Standards.
3. The Township should amend Chapter 85, Subdivision and Site Plan Review Ordinance standards to incorporate the recommendations contained in the Municipal Stormwater Management Plan (pages 17 and 18) to amend Section 85-13. Preliminary Plat Details, Section 85-20. Streets, Section 85-22. Sidewalks, Section 85-23. Curbing, Section 85-28. Drainage, Section 85-36. Details Required for Preliminary (Site Plan) Approval, Section 85-43.1. Criteria to be Considered, and additional

TOWNSHIP OF PRINCETON

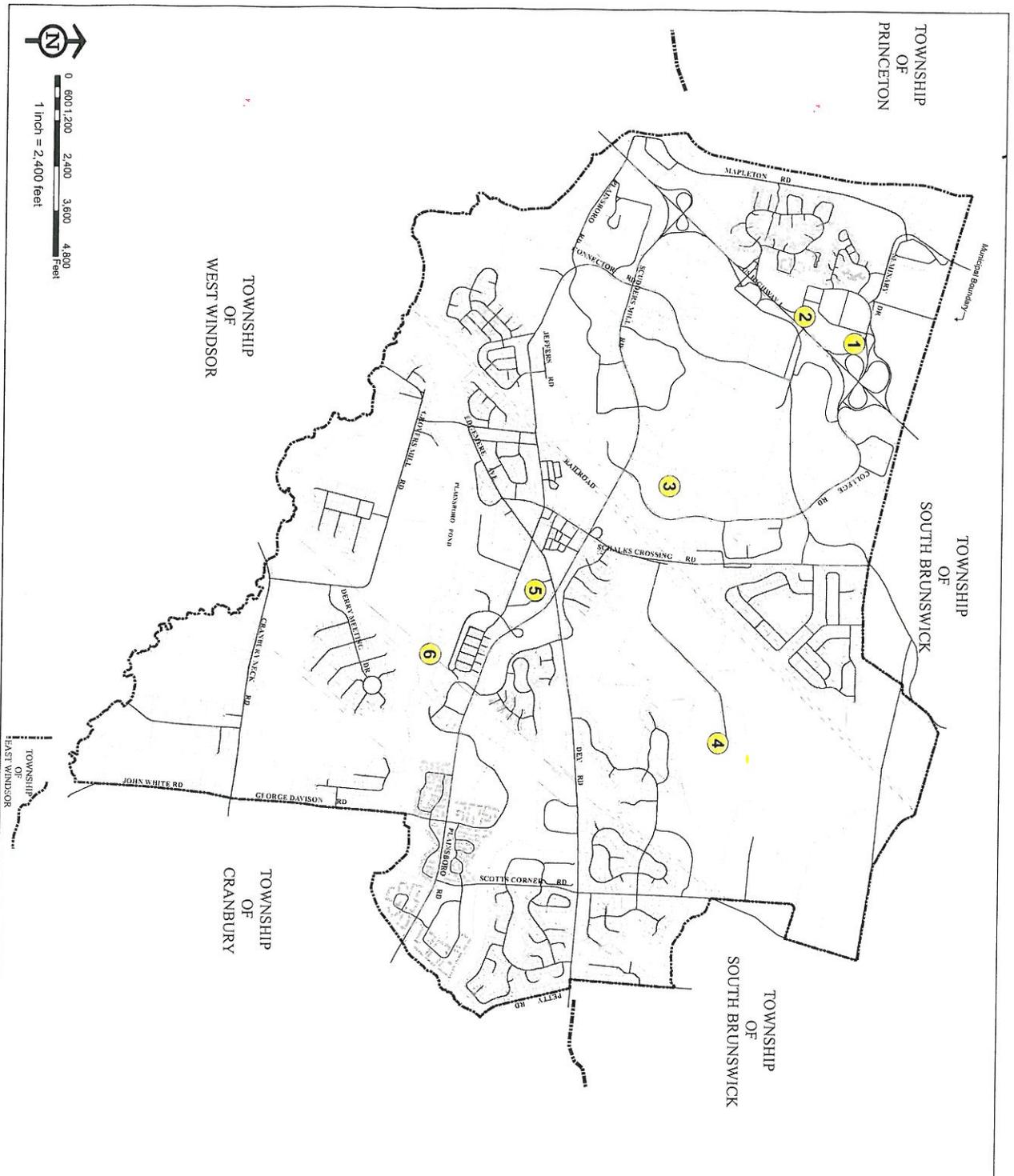


# Township of PLAINBORO

Middlesex County, New Jersey

## TELECOMMUNICATIONS FACILITIES MAP

April 2008



- 1 Existing Antenna on Marriot Hotel Roof  
(N/F: Metal Communications, Microwave Mobile Systems, Sprint Spectrum)
- 2 Existing Lattice Tower & Antennas at State Police Facility  
(N/F: Police, Fire, EMS)
- 3 Existing Lattice Tower & Antennas At 700 College Road (First Boston)  
(N/F: Cellular Ops, AT&T Wireless)
- 4 Existing Antennas on Water Tower At IRL Property  
(N/F: Iridium Mobile System)
- 5 Existing Lattice Tower & Antennas At Municipal Complex  
(N/F: AT&T Wireless, Verizon, Sprint Spectrum, Police, Fire, EMS)
- 6 Existing Antennas on PSE&G Tower  
(N/F: AT&T Wireless)

(N/F) Now or Formerly



0 600 1,200 2,400 3,600 4,800 Feet

1 inch = 2,400 feet

Figure 24

Prepared By:  
  
**David J. Samuel, P.E.**  
 Township Engineer

design criteria associated with the use of native plant materials for landscaping buffers and to permit the incorporation of nonstructural stormwater management techniques into landscape buffers, where they would not detract from their purpose.

4. The Township should continue to be involved with the updating of the County Wastewater Management Plan and monitoring the sewer flow at the UWPM. The NJDEP is requiring the County to prepare a plan that evaluates local sewer service areas for consistency with the County plan.

5. The Township should keep informed of any failing subsurface sewerage disposal systems and facilitate the appropriate remedial action(s).



**Power Box**

6. The Township should continue to promote the timely and efficient collection and disposal of solid waste and to promote recycling.
7. The Township should continue to promote the sharing of facilities for wireless telecommunication systems and to make sure that installations are appropriately screened from nearby neighbors and other incompatible land uses and to promote the coordination of ground mounted support facilities among different companies in association with antenna installations.
8. Incorporate available water and wastewater management capacity information that supports the Township's short and long term infrastructure needs for planned future development in the Township.
9. Monitor water and wastewater capacity needs of the Township that are required to support new growth and development within Planning Area 2 of the Township, except where necessary to protect public health and safety.

