

FRANKLIN TOWNSHIP
STORMWATER MANAGEMENT PLAN
July 2006
Revised January 2022

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INTRODUCTION

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for Franklin Township (“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 and due within twelve months of the effective date of the Township’s stormwater permit authorization. The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development, defined as projects that disturb one (1) or more acre of land or increase impervious surfaces by 0.25 acres. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides baseflow in receiving water bodies. By adoption of the design and performance standards as presented in N.J.A.C. 7:8-5, the plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

The MSWMP is required to be updated on an ongoing basis at each municipal review of the Township’s Master Plan. As part of each update the Township also reviews its Zoning and Land Development ordinances as deemed necessary to better meet stormwater management goals. This current MSWMP revision includes required provisions from new NJDEP Stormwater Rules at N.J.A.C. 7:8 adopted in January of 2020 and the January 2016 Highlands Region Stormwater Management Program Guidance Document (rev. March 2020). The update includes a “build-out” analysis based upon existing zoning and land available for development and also provides mitigation options for instances where a variance or exemption from required design and performance standards is sought. Specific stormwater management measures to mitigate variances or exemptions are incorporated into this plan. The Township’s SWM Ordinance is also in the process of being updated to conform with the newly adopted NJDEP Stormwater Rules and Highlands Guidance Document.

I. GOALS

The goals of this MSWMP are to:

- reduce flood damage, including damage to life and property;
- minimize, to the extent practical, any increase in stormwater runoff from any new development;
- reduce soil erosion from any development or construction project and to mitigate as much as practical soil erosion from agricultural land.
- assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
- maintain groundwater recharge;
- prevent, to the greatest extent feasible, an increase in non-point pollution;
- maintain the integrity of stream channels for their biological functions, as well as for drainage;
- 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

- protect public safety through the proper design and operation of stormwater basins.

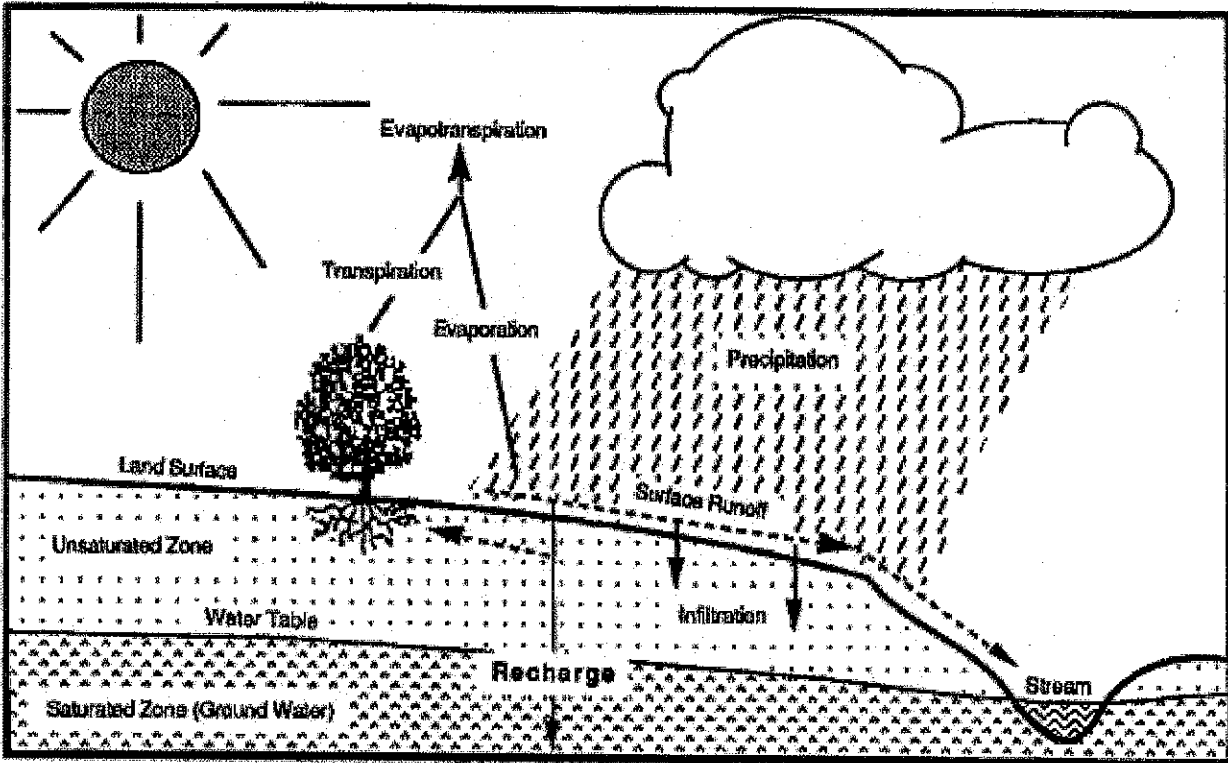
To achieve these goals, this plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address impacts from existing development. Preventative and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities. The plan also outlines safety standards for stormwater infrastructure to be implemented to protect public safety.

II. STORMWATER DISCUSSION

Land development can dramatically alter the hydrologic cycle (See Figure 1) of a site and, ultimately, an entire watershed. Prior to development, native vegetation can either directly intercept precipitation or draw that portion that has infiltrated into the ground and return it to the atmosphere through evapotranspiration. Development can remove this beneficial vegetation and replace it with lawn or impervious cover, reducing the site's evapotranspiration and infiltration rates. Clearing and grading a site can remove depressions that store rainfall. Construction activities may also compact the soil and diminish its infiltration ability. This could result in increased volumes and rates of stormwater runoff from the site. Impervious areas that are connected to each other through gutters, channels, and storm sewers can transport runoff more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall-runoff response of the drainage area, causing flow in downstream waterways to peak faster and higher than natural conditions. These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in the channel. Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream. Increases in impervious area can also decrease opportunities for infiltration that, in turn, reduces stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt.

Figure 1: Groundwater Recharge in the Hydrologic Cycle

Source: New Jersey Geological Survey Report GSR-32.



In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients.

In addition to increased pollutant loading, land development can adversely affect water quality and stream biota in more subtle ways. For example, stormwater falling on impervious surfaces or stored in detention or retention basins can become heated and raise the temperature of the downstream waterway, adversely affecting cold water fish species such as trout. Development can remove trees along stream banks. These trees would normally provide shading, stabilization, and leaf litter that falls into the streams and becomes food for the aquatic community.

III. BACKGROUND

Franklin Township encompasses approximately 24 square miles in Warren County, New Jersey. Township population has grown from 2,768 (2000 census) to 3,176 (2010 census). The increased population and associated development have more than likely increased stormwater runoff volumes and pollutant loads to the waterways of the municipality. Figures 2 and 3 show the locations of waterways within the Township. Waterways of note in the municipality are Pohatcong Creek, along with several of its associated tributaries, and the Musconetcong River. The Pohatcong generally traverses the Township from northeast to southwest while the Musconetcong constitutes the southeast Township boundary. The main stem of the Pohatcong Creek as well as its tributaries located within the Township boundaries are classified as Category 1 waterways. In addition, a Musconetcong River tributary located in the easternmost section of the Township is also classified as a Category 1 waterway. Therefore, all land adjacent to these Category 1 waterways are subject to a 300-ft. buffer in accordance with the NJDEP Flood Hazard Area rules.

The New Jersey Department of Environmental Protection (NJDEP) has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. There are over 800 AMNET sites throughout the state of New Jersey. These sites are sampled for benthic macroinvertebrates by NJDEP on a five-year cycle. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics. The New Jersey Integrated Water Quality Monitoring and Assessment Report (305(b) and 303 (d)) (Integrated List) is required by the federal Clean Water Act to be prepared biennially and is a valuable source of water quality information. This combined report presents the extent to which New Jersey waters are attaining water quality standards, and identifies waters that are impaired. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more Total Maximum Daily Loads (TMDLs) are needed.

A TMDL is the amount of a pollutant that can be accepted by a waterbody without causing an exceedance of water quality standards or interfering with the ability to use a waterbody for one or more of its designated uses. The allowable load is allocated to the various sources of the pollutant, such as stormwater and wastewater discharges, which require an NJPDES permit to discharge, and non-point source, which includes stormwater runoff from agricultural areas and residential areas, along with a margin of safety. Provisions may also be made for future sources in the form of reserve capacity. An implementation plan is developed to identify how the various sources will be reduced to the designated allocations. Implementation strategies may include improved stormwater treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater systems, and other BMPs.

Based upon NJDEP's TMDL Look Up Tool the following TMDL's are currently in effect:

1. Fecal Coliform – Musconetcong River near Bloomsbury & at Riegelsville
2. Fecal Coliform – Pohatcong Creek at New Village

3. Fecal Coliform – Pohatcong Creek at River Road bridge
4. Mercury – Merrill Creek
5. Mercury – Pohatcong Creek (Springtown to Merrill Creek)

IV. DESIGN AND PERFORMANCE STANDARDS

The Township will adopt the design and performance standards for stormwater management measures as presented in N.J.A.C. 7:8-5 to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies. The design and performance standards include the language for maintenance of stormwater management measures consistent with the stormwater management rules at N.J.A.C. 7:8-5.8 Maintenance Requirements, and language for safety standards consistent with N.J.A.C. 7:8-6 Safety Standards for Stormwater Management Basins and standards for incorporation of Green Infrastructure pursuant to N.J.A.C. 7:8-5.3. During construction, Township inspectors will observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed.

V. PLAN CONSISTENCY

The Township lies within the Highlands Region. This stormwater management plan is established to be consistent with the Highlands Regional Master Plan for those portions of the Township which are contained within the Highlands Preservation Area and to be consistent with the requirements in N.J.A.C. 7:8 Stormwater Management for Municipal Stormwater Management Plans.

This stormwater management plan is also consistent with the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21. The municipality utilizes the most current update of the RSIS in the stormwater management review of residential areas. This Municipal Stormwater Management Plan will be updated to be consistent with any future updates to the RSIS.

The Township's Stormwater Management Ordinance will require that all new development and redevelopment plans comply with New Jersey's Soil Erosion and Sediment Control Standards. During construction, Warren County Soil Conservation District inspectors will observe on-site soil erosion and sediment control measures and reports any inconsistencies to the Warren County Soil Conservation District.

VI. NONSTRUCTURAL STORMWATER MANAGEMENT STRATEGIES

The Township encourages the incorporation of the following nonstructural stormwater management strategies for all development within the township pursuant to N.J.A.C. 7:8-2.4. In addition, the Township shall review its land development and zoning ordinances as part of its required Periodic Reexamination of the Master Plan and make necessary revisions to accommodate these strategies.

1. Protect existing areas which already provide water quality benefits.
2. Minimize impervious surfaces and break up flow from impervious surfaces.
3. Protect natural drainage features and vegetation.
4. Minimize decreases in time of concentration.
5. Minimize land disturbance.
6. Provide low maintenance landscaping to minimize the use of fertilizers.
7. Provide vegetated channels and vegetated filter strips.
8. Impose source controls to limit trash, fertilizers, pesticides and spills.

VII. LAND USE/BUILD-OUT ANALYSIS

Build-out and pollutant impact analyses based upon existing zoning are included in the Appendix to this plan. The zoning districts are as follows. See Figure 6 for Zoning Map.

- RC - Rural Conservation
- R75 - Village Residential
- C1 - Village Commercial
- C2- Township Commercial
- HC - Highway Commercial
- OB - Office Building
- PD - Planned Development
- I - Industrial
- IP - Planned Industrial

VIII. MITIGATION PLANS

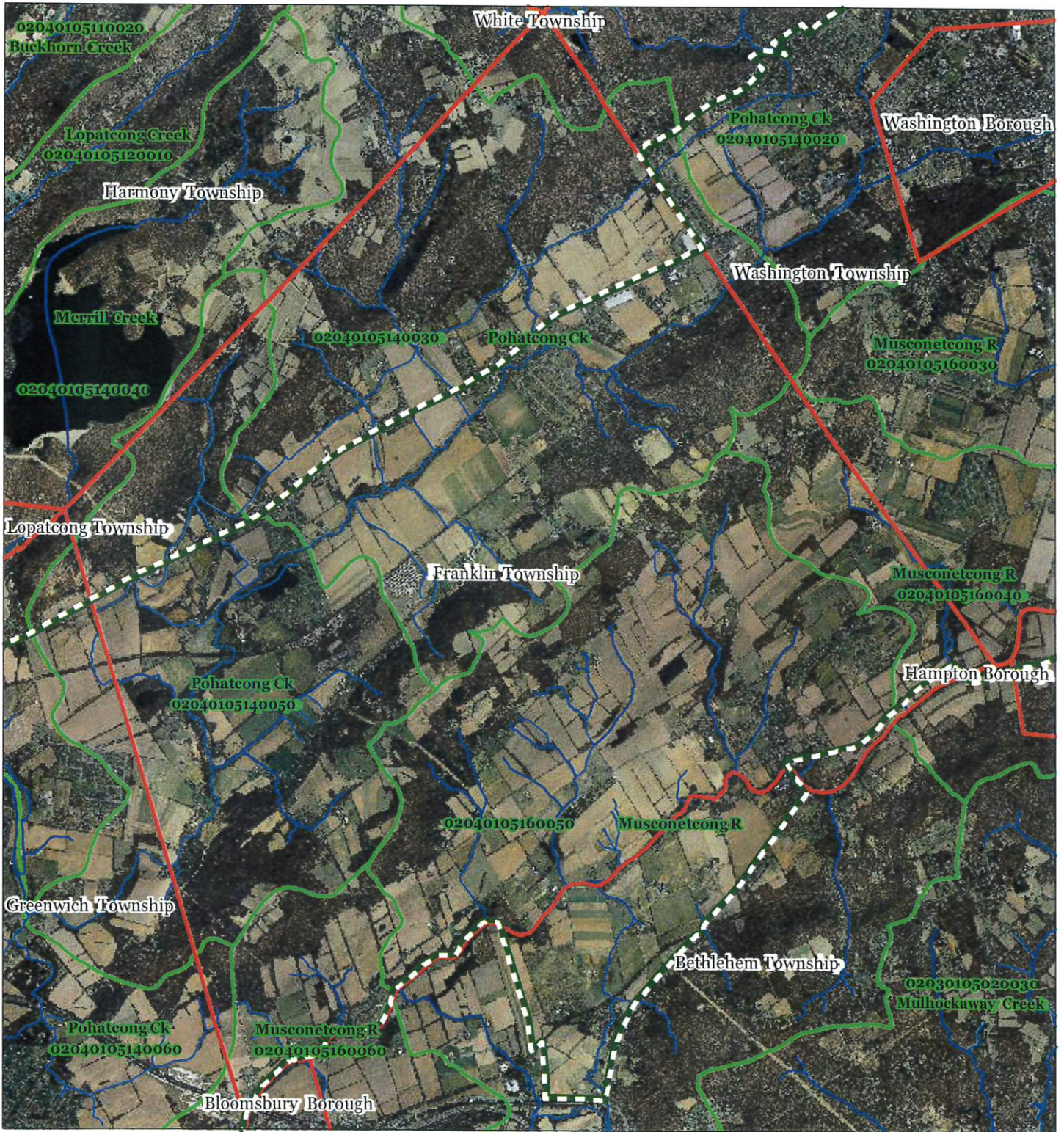
In accordance with N.J.A.C 7:8-4.6 a municipality may grant a variance from the design and performance standards for stormwater management measures as set forth in its stormwater control ordinance provided that its stormwater management plan and ordinance contain provisions for stormwater mitigation pursuant to N.J.A.C. 7:8-4.2(c)11. This plan includes the following provisions which are designed satisfy this requirement.





The municipal review agency may grant variances from the design and performance standards set forth in its stormwater control ordinance provided that the following conditions are met.

1. The applicant demonstrates that it is technically impracticable to meet any one or more of the design and performance standards onsite. For the purposes of this analysis, technical impracticability exists only when the design and performance standard cannot be met for engineering, environmental, or safety reasons. The municipality's approval of a variance shall apply to an individual drainage area and design and performance standard and shall not apply to an entire site or project, unless an applicant provides the required analysis for each drainage area within the site and each design and performance standard.

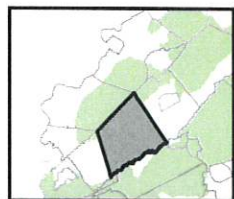
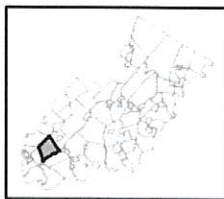
2. The applicant demonstrates that the proposed design achieves the maximum possible compliance with the design and performance standards on-site.
3. A mitigation project in accordance with the following is implemented.
 - i. The mitigation project should provide mitigation that is equivalent to the impacts for which the variance or exemption is sought.
 - ii. The mitigation project may be a project which has been established by the Township or may be a project proposed by the applicant, provided it meets the criteria in the ordinance. Potential project sites for water quality and recharge mitigation are the Franklin Township School on Anderson-Asbury Road (Block 26, Lot 12), the Franklin Rescue Squad also located on Anderson-Asbury Road (Block 17, Lot 36) and the Franklin Township Municipal Building on Route 57 (Block 16, Lot 12.01).
 - iii. The mitigation project shall be approved no later than preliminary or final site plan approval of the major development.
 - iv. The mitigation project shall be located in the same HUC 14 as the area of the major development subject to the variance.
 - v. The mitigation project shall be constructed prior to or concurrent with the major development.
 - vi. The mitigation project shall comply with the green infrastructure standards as required at N.J.A.C. 7:8-5.2(a)2. and adopted by ordinance.
4. The applicant shall be responsible for preventive and corrective maintenance (including replacement) of the mitigation project. This responsibility is not transferable to any entity other than a public agency, in which case, a written agreement with that public agency must be submitted to the review agency.
5. Any approved variance shall be submitted by the municipal review agency to the county review agency and the Department by way of a written report describing the variance, as well as the required mitigation, within 30 days of the approval.

Figure 1: HUC 14 Boundaries



-  HUC 14 Subwatersheds
-  Stream Centerlines
-  Preservation Area
-  Municipal Boundaries

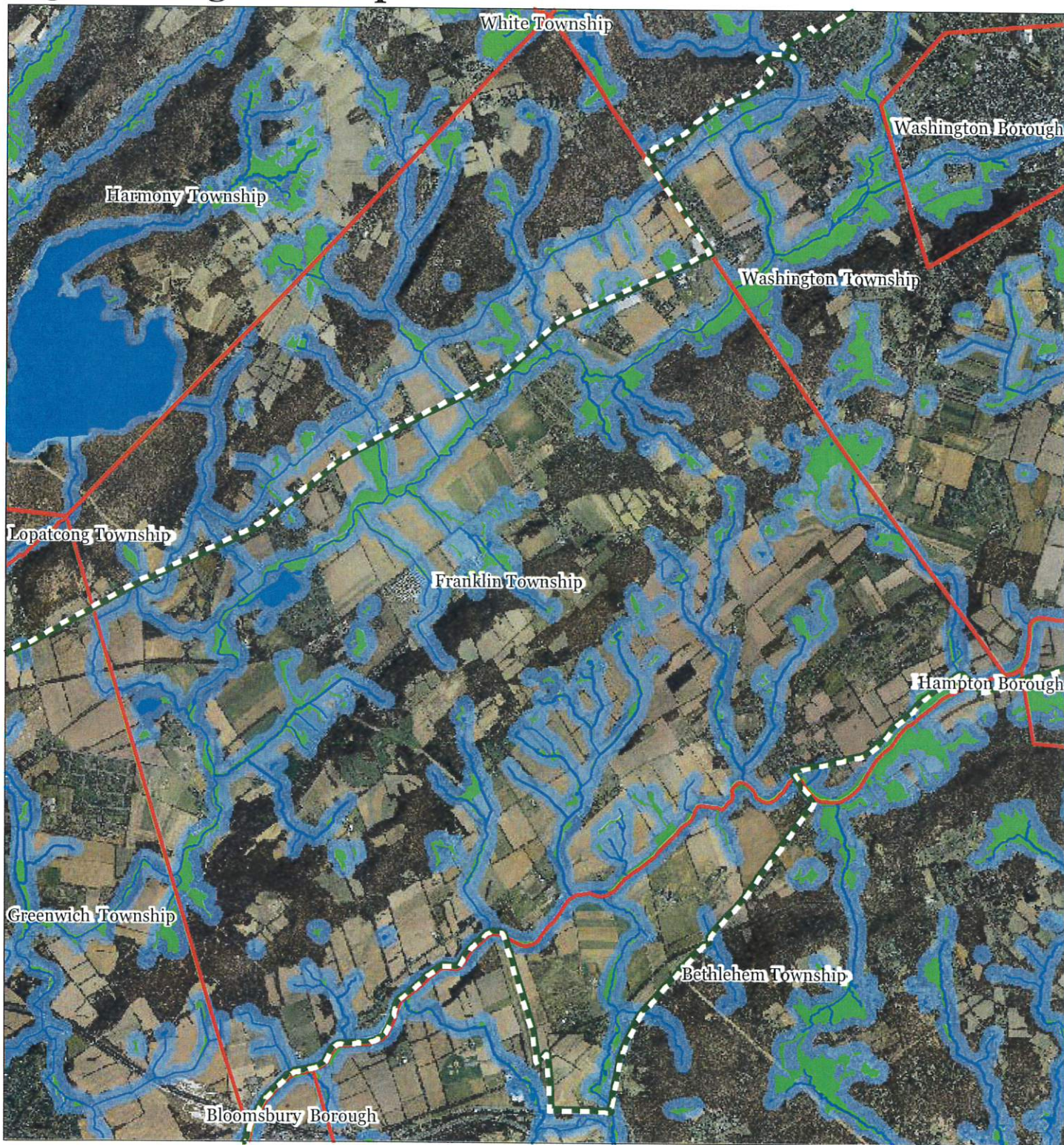
Franklin Township



1 inch = 0.88 miles



Figure 2: Highlands Open Waters



-  Highlands Open Water Buffers (300ft)
-  Streams
-  Wetlands
-  Lakes & Ponds
-  Preservation Area
-  Municipal Boundaries

Franklin Township

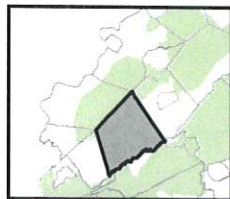
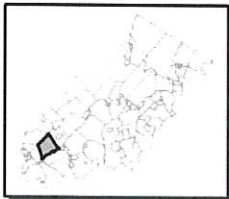
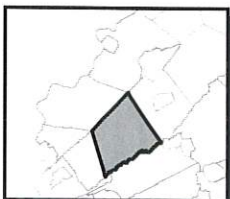


Figure 3: Highlands Riparian Areas



- Riparian Area
- Preservation Area
- Municipal Boundaries

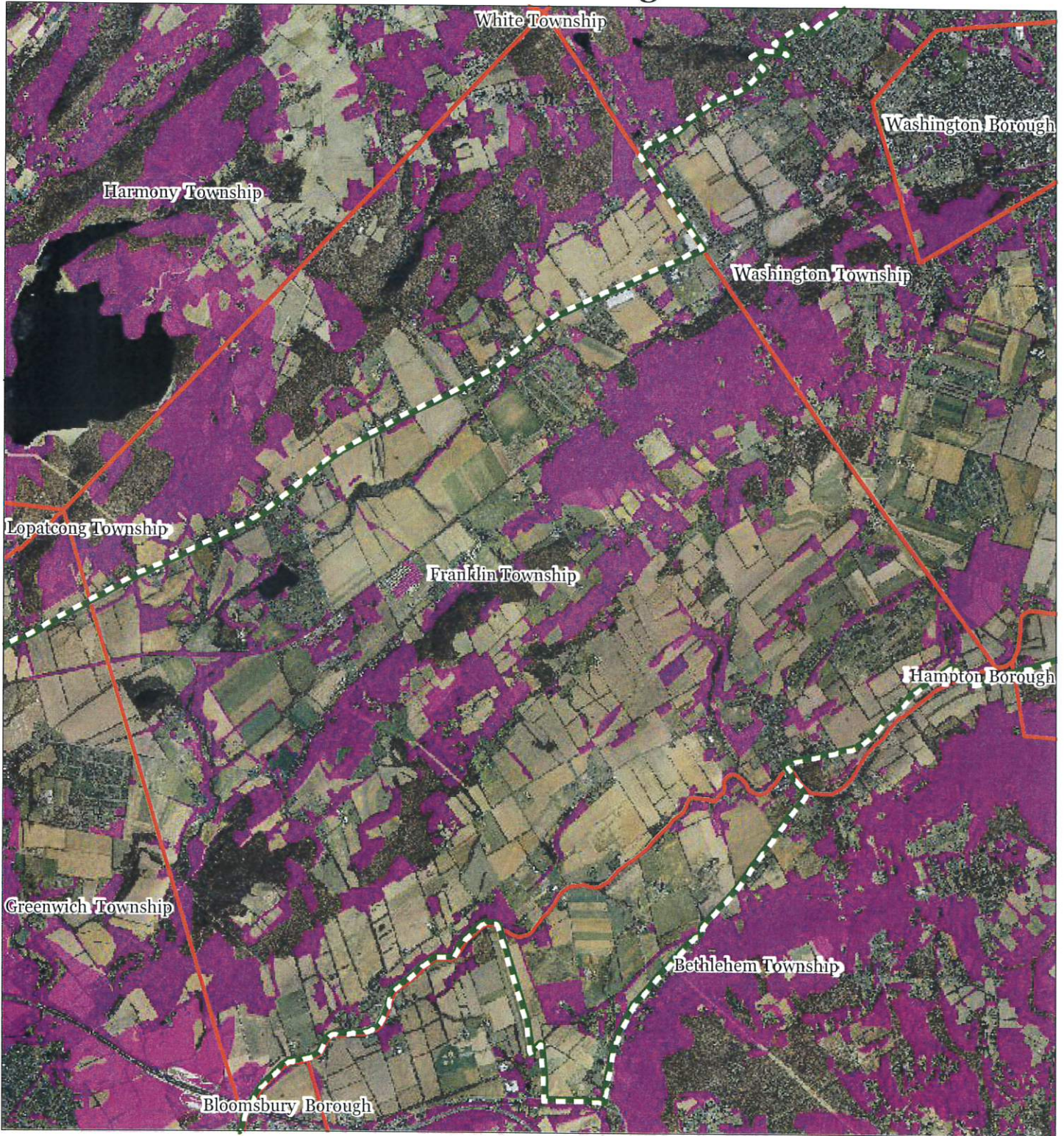
Franklin Township






1 inch = 0.88 miles

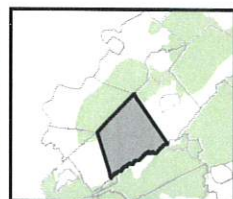


Figure 4: Prime Ground Water Recharge Areas



-  Prime Groundwater Recharge Areas
-  Preservation Area
-  Municipal Boundaries

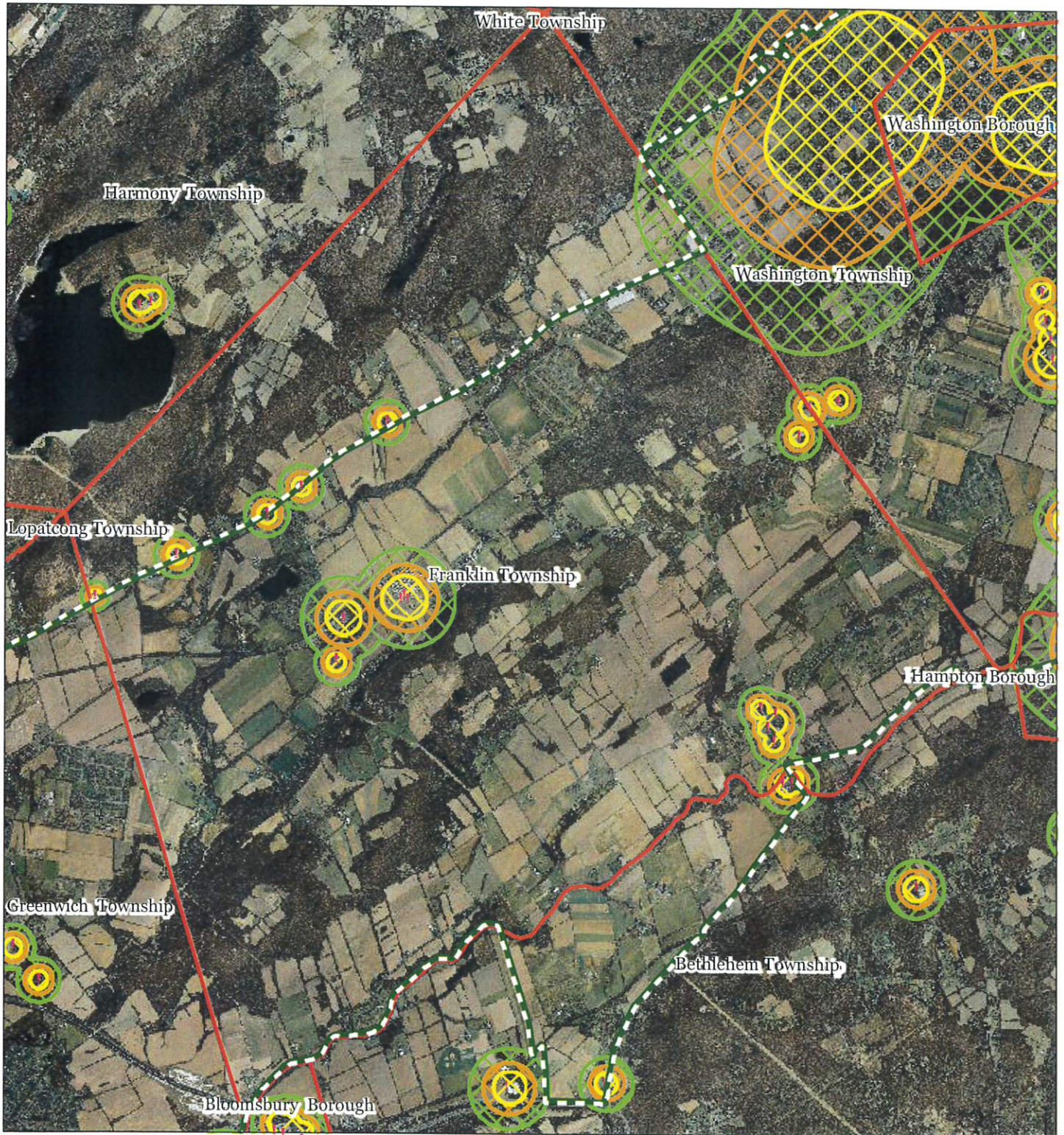
Franklin Township



Highlands Council
1 inch = 0.88 miles



Figure 5: Wellhead Protection Areas



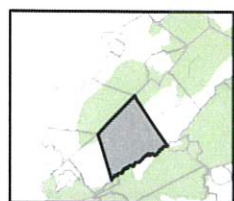
- Public Community Wells
- Public Non-Community Wells

Wellhead Protection Areas

- 2-Year Tier
- 5-Year Tier
- 12-Year Tier

- Preservation Area
- Municipal Boundaries

Franklin Township



1 inch = 0.88 mile



WHITE TOWNSHIP

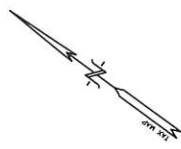
HARMONY TOWNSHIP

WASHINGTON TOWNSHIP

BETHLEHEM TOWNSHIP
HUNTERDON COUNTY

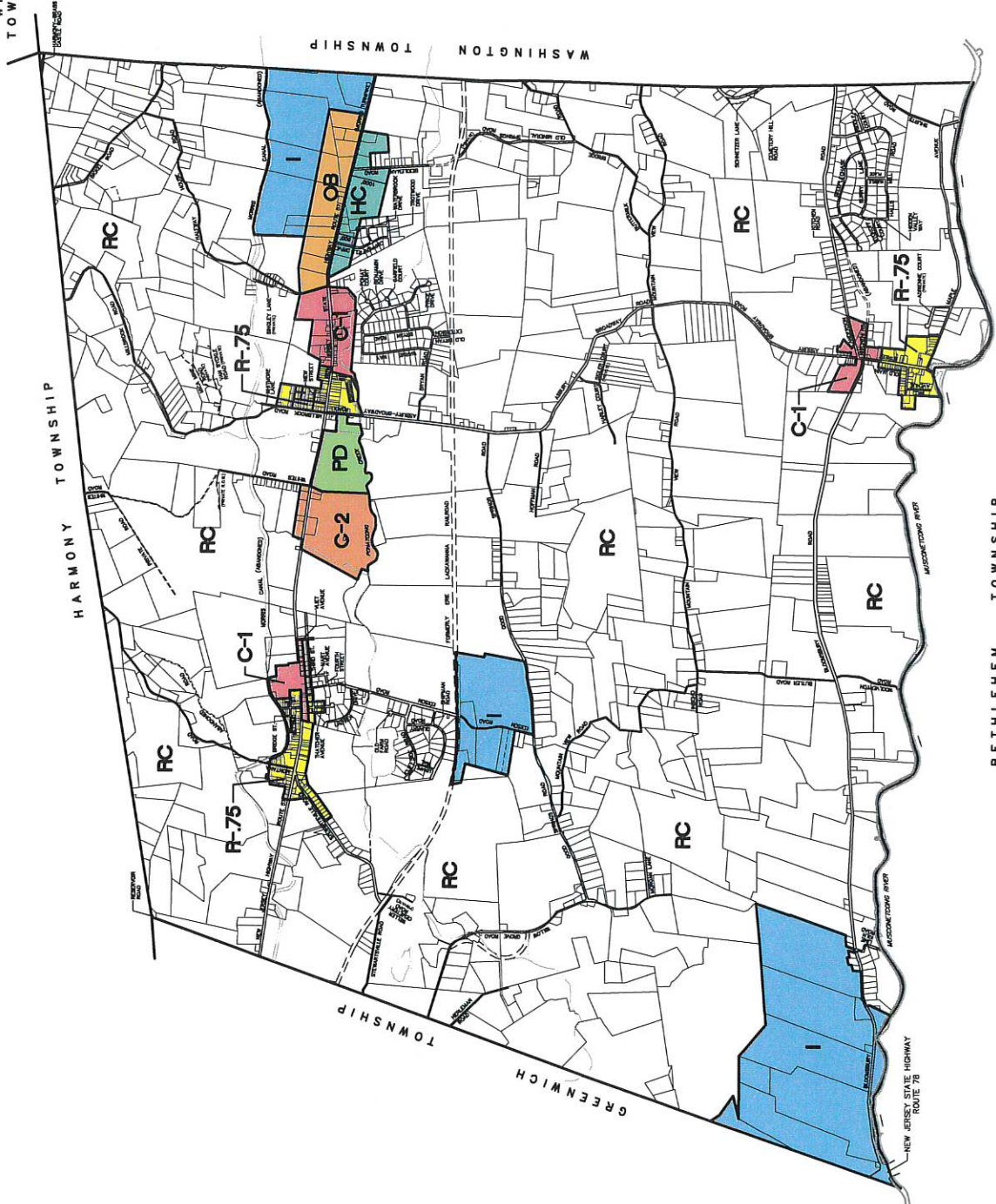
GREENWICH TOWNSHIP

NEW JERSEY STATE HIGHWAY
ROUTE 78



LEGEND

- RC RURAL CONSERVATION
- R-75 VILLAGE RESIDENTIAL
- PD PLANNED DEVELOPMENT
- I INDUSTRIAL
- OB OFFICE BUILDING
- C-1 VILLAGE COMMERCIAL
- C-2 TOWNSHIP COMMERCIAL
- HC HIGHWAY COMMERCIAL



ZONING MAP
TOWNSHIP OF FRANKLIN
WARREN COUNTY, NEW JERSEY

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SUITE 200
FRANKLIN, NJ 07001
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DATE: 10/15/2010
1. THIS MAP INFORMATION DEVELOPED BY FINELLI CONSULTING ENGINEERS, INC.
2. THIS MAP DOES NOT REPRESENT EACH INDIVIDUAL PARCEL WITHIN THE TOWNSHIP.

HUC14 Drainage Basin # 02040105160050

*Zone RC = 4,051.86 Acres
Zone C-1 = 28.74 Acres
Zone R-.75 = 48.29 Acres*

HUC14 Drainage Basin # 02040105160040

Zone RC = 741.49 Acres

HUC14 Drainage Basin # 02040105140040

Zone RC = 54.59 Acres

HUC14 Drainage Basin # 02040105140020

Zone RC = 118.99 Acres

HUC14 Drainage Basin # 02040105140050

*Zone R-.75 = 45.28 Acres
Zone C-1 = 0.56 Acres
Zone I = 140.95 Acres
Zone RC = 3,194.57 Acres*

HUC14 Drainage Basin # 02040105140060

*Zone RC = 29.56 Acres
Zone IP = 50.21 Acres*

HUC14 Drainage Basin # 02040105160060

Zone RC = 259.57 Acres

Zone IP = 480.73 Acres

HUC14 Drainage Basin # 02040105140030

Zone RC = 4,808.11 Acres

Zone R-.75 = 68.99 Acres

Zone OB = 108.86 Acres

Zone IP = 202.27 Acres

Zone 5 = 26.33 Acres

Zone HC = 70.50 Acres

Zone C-1 = 97.16 Acres

Zone PD = 59.80 Acres

Zone C-2 = 103.25 Acres

Zone I = 1.15 Acres

Drainage Basin #02040105160060 - 300' C1 Stream Buffers

RC	IP								
0	0								
0	0	0	0	0	0	0	0	0	0

Drainage Basin #02040105140030 - 300' C1 Stream Buffers

RC	R-75	OB	IP	HC	C-1	PD	C-2	I	
884	7	8	0	0	38	22	37	0	
884	7	8	0	0	38	22	37	0	0

Drainage Basin #02040105160060 - Wetland Areas

RC	IP								
5	7								
5	7	0	0	0	0	0	0	0	0

Drainage Basin #02040105140030 - Wetland Areas

RC	R-75	OB	IP	HC	C-1	PD	C-2	I	
287	0.22	10	6	3	14	9	17	0.11	
287	0.22	10	6	3	14	9	17	0.11	0

FRANKLIN TOWNSHIP
BUILD-OUT ANALYSIS

HUC 14 and ZONE	TOTAL AREA (ACRES)	DEVELOPED (ACRES)	EXISTING IMPERVIOUS (%)	EXISTING IMPERVIOUS (ACRES)	CONSTRAINED AREAS (ACRES)	DEVELOPABLE AREA (ACRES)	ALLOWABLE IMPERVIOUS (%)	BUILD-OUT IMPERVIOUS (ACRES)
02040105160050								
RC	4062	100	1	1	128	3335	5	167
C-1	29	15	25	3.75	1	24	60	14
R-0.75	48	35	10	3.5	0	41	25	10
Total	4129	150		8.25	129	3400		191
02040105160040								
RC	742	50	1	0.5	203	458	5	23
Total	742	50		0.5	203	458		23
02040105140040								
RC	55	0	0	0	7	41	5	2
Total	55	0		0	7	41		2
02040105140020								
RC	119	30	1	0.3	12	91	5	5
Total	119	30		0.3	12	91		5
02040105140050								
R-0.75	45	25	40	10	16	25	25	6
C-1	1	0.5	10	0.05	0	1	60	1
I	141	20	5	1	11	111	50	56
RC	3195	100	1	1	681	2137	5	107
Total	3382	145.5		12.05	708	2274		170
02040105140060								
RC	30	0	0	0	0	26	5	1
IP	50	0	0	0	0	43	50	22
Total	80	0		0	0	69		23

FRANKLIN TOWNSHIP
BUILD-OUT ANALYSIS

02040105160060									
RC	260	60	3	1.8	5	217	5	11	
IP	481	25	1	0.25	7	403	50	202	
Total	741	85		2.05	12	620		213	

FRANKLIN TOWNSHIP
BUILD-OUT ANALYSIS

02040105140030											
RC	4808	300	1	1171	3	3091	5	155			
R-0.75	69	65	20	7	13	53	25	13			
OB	109	30	3	18	0.9	77	50	39			
IP	202	10	1	6	0.1	167	50	84			
HC	71	5	0.5	3	0.025	58	50	29			
C-1	97	5	2	52	0.1	38	60	23			
PD	60	0	0	31	0	25	40	10			
C-2	103	18	3	54	0.54	42	55	23			
J	1	0	0	0.11	0	1	50	1			
Total	5520	433		1342.11	17.665	3552		377			
TOTAL	14768	893.5		2413.11	40.815	10505		1004			

**FRANKLIN TOWNSHIP
PNT UNIT LOADS**

Land Cover	Total Phosphorus Load (lbs/acre/year)	Total Nitrogen Load (lbs/acre/year)	Total Suspended Solids Load (lbs/acre/year)
High, Medium Density Residential	1.4	15	140
Low Density, Rural Residential	0.6	5	100
Commercial	2.1	22	200
Industrial	1.5	16	200
Urban, Mixed Urban, Other Urban	1	10	120
Agricultural	1.3	10	300
Forest, Water, Wetlands	0.1	3	40
Barren Land/Transitional Land	0.5	5	60

Source: NJDEP Stormwater BMP Manual 2004

**FRANKLIN TOWNSHIP
POLLUTANT LOAD IMPACT**

HUC 14 and ZONE	DEVELOPABLE AREA (ACRES)	TP (lbs/acre/yr)	TP (lbs/yr)	TN (lbs/acre/yr)	TN (lbs/yr)	TSS (lbs/acre/yr)	TSS (lbs/yr)
02040105160050							
RC	3335.4	0.6	2001	5	16677	100	333540
C-1	23.8	1	24	10	238	120	2856
R-0.75	40.8	0.6	24	5	204	100	4080
Total	3400		2049		17119		340476
02040105160040							
RC	458.15	0.6	275	5	2291	100	45815
Total	458.15		275		2291		45815
02040105140040							
RC	40.8	0.6	24	5	204	100	4080
Total	40.8		24		204		4080
02040105140020							
RC	90.95	0.6	55	5	455	100	9095
Total	90.95		55		455		9095
02040105140050							
R-0.75	24.65	0.6	15	5	123	100	2465
C-1	0.85	1	1	10	9	120	102
I	110.5	1.5	166	16	1768	200	22100
RC	2136.9	0.6	1282	5	10685	100	213690
Total	2272.9		1464		12585		238357
02040105140060							
RC	25.5	0.6	15	5	128	100	2550
IP	42.5	1.5	64	16	680	200	8500
Total	68		79		808		11050
02040105160060							
RC	216.75	0.6	130	5	1084	100	21675
IP	402.9	1.5	604	16	6446	200	80580
Total	619.65		734		7530		102255
02040105140030							
RC	3091.45	0.6	1855	5	15457	100	309145
R-0.75	52.7	0.6	32	5	264	100	5270
OB	77.35	2.1	162	22	1702	200	15470
IP	166.6	1.5	250	16	2666	200	33320
HC	57.8	2.1	121	22	1272	200	11560
C-1	38.25	1	38	10	383	120	4590
PD	24.65	1.4	35	15	370	140	3451

**FRANKLIN TOWNSHIP
POLLUTANT LOAD IMPACT**

C-2	41.65	2.1	87	22	916	200	8330
I	0.7565	1.5	1	16	12	200	151
Total	3551.2065		2581		23042		391287
TOTAL	10502		7261		64034		1142415