

## Appendix A – Habitat Suitability Determinations/Wetlands Letters of Interpretation

Documentation of any Habitat Suitability Determinations and Wetlands Letters of Interpretation (LOI) relating to sewer service areas, DEP documents listed as follows:

Table A-1. Habitat Suitability Determinations/ Wetlands Letters of Interpretation		
Municipality	Recipient	Correspondence Date
Franklin	Franklin Village LLC Block 3 Lot 14.01 Wetlands Letter of Interpretation (LOI)	5-9-07
Franklin	Franklin Shopping Center LLC Block 3 Lots 4, 7, 14.03 Wetlands LOI and Permit	3-25-09
Franklin	Group 5 Development, LLC Block 70 Lot 7.05 Letter regarding T & E habitat	12-21-09
Hampton	Martin Realty Wetlands LOI	5-11-09
Lafayette	Nouvelle Associates Wetlands LOI, Habitat Study	10-7-08
Wantage	Maione Homes/ Mt. View Manor Habitat Suitability Determination	12-2-09

## Appendix B – WMP Amendments Approved by DEP Since Sept. 2001

WMP Amendments	Description and DEP Approval Date
Newton Water Treatment Facility, Sparta Twp.	Discharge to surface water (DSW) for Morris Lake water treatment filter backwash, DEP approval 1/29/02
Blue Heron Project, Sparta Twp.	Increase discharge from 16,500 to 26,000 GPD discharge to ground water (DGW), DEP approval 7/19/05
Allocation transfer from Sussex Borough To Hardyston	Transfer of 25,000 gallons per day (GPD) allocation within SCMUA service area, DEP approval on 2/7/03
Allocation transfer for Sparta Commons, Route 616, Sparta Twp.	Transfer from SCMUA reserves to Sparta Commons of 25,000 GPD, project already in sewer service area, DEP approval on 7/1/05
Allocation transfer within Hardyston MUA from Walkkill Valley High School to YMCA	Transfer of 25,000 GPD allocation within SCMUA service area, DEP approval on 5/18/04
TMB Partners, Route 15, Lafayette	Increase to 8,600 GPD for discharge to groundwater (DGW), DEP approval on 3/13/03
Mt. Creek and Vernon Center, Vernon Twp.	Proposed DWG of 265,000 GPD at site on Route 94 in Vernon Twp. with treatment at SCMUA plant, DEP approval on 2/23/05
Lafayette Federated Church Route 15, Lafayette	To serve expansion of church, septic DGW increase to 3,000 gpd, DEP approval on 3/10/05
Branchville Borough And Frankford Twp.	To provide for sewer service to Branchville Borough and sites in Frankford Township with 211,854 GPD, DGW located in Frankford Township, DEP approval on 1/17/07
Crossed Keys Inn, Route 603, Green Twp.	Proposed DGW of 5,000 GPD for banquet facility, DEP approval on 1/23/07
County of Sussex Homestead Complex, Route 655, Frankford	Addition of 3.5 acres to sewer service area for two Youth Shelter facilities, DEP approval on 9/11/06
Lake Mohawk Golf Club, Sparta Twp.	Proposed DGW of 5,350 GPD for expansion of clubhouse and new pro shop, DEP approval in 2007
Missionary of Salesian Sisters Hampton Twp.	Expansion of DGW to 6,635 GPD to serve addition to retreat center, DEP approval in 2009
Kimber Petroleum Route 15, Lafayette	Increase DGW to 2,518 GPD to serve expanded gas station, retail and bank, DEP approval on 10/2/08
Wantage Village, Rt. 628, Wantage	DEP removed Lot 10.06 from sewer area, Lot 10.01 has DGW for 19,867 gpd for mixed use, DEP approval 12/5/07
Schreck Lot Addition, Sparta	Add lot to sewer area for White Deer Plaza, approval 8/29/11
Byram Twp. WMP	Municipal WMP for Byram Center and Highlands Plan Conformance, DEP approval 7/24/12
Ross' Corner area, Rt. 206, Frankford	New DGW of 210,394 GPD to serve Sussex Commons shopping center, other commercial and housing development, DEP approval on 7/25/13

## **Appendix C – Wastewater Facilities Tables**

The wastewater facility tables for all sanitary and/or process wastewater discharge to surface water facilities and those sanitary/ and/or process wastewater discharge to groundwater facilities discharging greater than 2000 gallons per day (i.e., requiring NJPDES permits) are listed below, based on whether they are domestic or industrial wastewater treatment facilities, and whether they have service areas that affect more than one municipality. A Summary Table is also provided. The wastewater discharges are measured in Million Gallons per Day (MGD).

### **Domestic Wastewater Facilities With Sewer Service Areas in Multiple Municipalities –**

The two regional wastewater facilities in Sussex County are the Sussex County Municipal Utilities Authority and Musconetcong Sewerage Authority, and their facilities tables are included in this appendix.

**Domestic Wastewater Facilities With Sewer Service Area in One Municipality –** The facility table for Newton is included in the Newton Municipal Chapter.

**On-Site Domestic Treatment Facilities–** These facilities are listed in the Summary Table and the facility table is in each Municipal Chapter.

**Industrial Wastewater Facilities –** These facilities are listed in in the Summary Table and the facility table is in each Municipal Chapter.



**DOMESTIC TREATMENT FACILITIES SERVING MULTIPLE MUNICIPALITIES  
FACILITY NAME: UPPER WALLKILL  
WATER POLLUTION CONTROL FACILITY**

1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0053350	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Wallkill River	
5. Classification of receiving water or aquifer:	FW2-NT	
6. Owner of facility:	Sussex County Municipal Utilities Authority	
7. Operator of facility:	Sussex County Municipal Utilities Authority	
8. Co-Permittee of facility ( <i>where applicable</i> ):		
9. Location of facility:		
a. Municipality & County	Hardyston Twp. – Sussex County	
b. Street address	3500 Route 94 North	
c. Block(s) and Lot(s)	Numerous in 6 municipalities	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74 35' 00 b. Latitude 41 09' 07 or c. State Plane Coordinates	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	3.00 MGD	
*12. Summary of population served/to be served including major seasonal fluctuations:	Current (Year 2013) Population	Build-out Population
<b>Total</b>	Approx. 15,000 – 17,000	Approx. 18,000 – 21,000
*13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2013) Flow (in MGD)	Build-out Future Flow (in MGD)
Municipality: Franklin	0.409	0.785
Municipality: Hamburg	0.219	<b>0.420</b>
Municipality: Hardyston		
Hardyston Twp. MUA	0.220	0.452
Aqua- Wallkill Sewer	0.074	0.155
Municipality: Sparta	0.076	0.210
Municipality: Sussex Borough	0.222	0.464
Municipality: Vernon	0.186	0.380
Municipality: Wantage	0.005	0.063
SCMUA landfill leachate	0.029	0.035
SCMUA sludge/ Septage recycle	0.036	0.036
<b>Total Current Flow, 2013</b>	<b>1.421 MGD</b>	<b>3.00 MGD</b>

\* Infiltration/Inflow (I/I): Existing I/I should be identified. However, additional future I/I may not be projected. (The NJPDES Treatment Works Approval regulations make numerical allowances for I/I.) The existing I/I can be carried-over and accounted for in the total future wastewater flow.

<b>DOMESTIC TREATMENT FACILITIES SERVING MULTIPLE MUNICIPALITIES</b>		
<b>FACILITY NAME: MUSCONETCONG SEWERAGE AUTHORITY</b>		
1. Existing or proposed facility:	Existing	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0027821	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Musconetcong River	
5. Classification of receiving water or aquifer:	FW2-TM	
6. Owner of facility:	Musconetcong Sewerage Authority	
7. Operator of facility:	Musconetcong Sewerage Authority	
8. Co-Permittee of facility ( <i>where applicable</i> ):	N/A	
9. Location of facility:		
a. Municipality & County	Mount Olive Twp. – Morris County	
b. Street address	110 Continental Drive, Budd Lake, NJ	
c. Block(s) and Lot(s)	Block 1 Lot 3	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude _74 43' 20.7	
	b. Latitude 40 54' 50.0 or	
	c. State Plane Coordinates _____	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	5.9 Million Gallons per Day (MGD)	
*12. Summary of population served/to be served including major seasonal fluctuations:	Current (Year 2012) Population	Build-out Population
Municipality: Stanhope	Approx. 3,500	TBD
Municipality: Byram	Approx. 700	1,100
Municipality: Hopatcong	Approx. 6,000	TBD
<b>MSA Facility Total (from 2008 WMP)</b>	<b>34,600</b>	<b>58,300</b>
13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2012) Flow (in MGD)	Build-out Flow (in MGD)*
Municipality: Stanhope	0.276	0.541
Municipality: Byram	0.032	0.100
Municipality: Hopatcong	0.392	0.580
<b>MSA Facility Total</b>	<b>2.12 MGD</b>	<b>5.9 MGD</b>

\* Allocation amount is used, since build-out is being done with Highlands Council.

TBD = To Be Determined, since build-out and Municipal Chapter are being done with Highlands Council

**Appendix D – Plan Approval Process, Public Notice and Comments**

Documentation of notifications is included in this appendix, based on the following listing:

Table D-1. County WMP Notifications and Responses		
Notification Recipient	Notification Date	Response Date
Note: table to be filled in after Public Notices are sent out		

Comments were received from the following public interests through the public hearing (transcript attached by reference) and written comments:

Table D-2. Public Comments Received		
Name	Affiliation	Date
Note: table to be filled out after Public Comment period		



*Describe below the comments and the County's responses to them.*

**Appendix E – Ordinances in Sewer Service Areas: Septic System Connection, Dry Conveyances**

Municipal ordinances regarding this topic are included in this appendix. The status of such ordinances is as follows:

<b>Table E-1. Ordinances for Septic System Connection in Sewer Service Areas</b>		
<b>Municipality</b>	<b>Ordinance Name/Number</b>	<b>Adoption Date</b>
Branchville Borough	Ordinance #04-10 Authorizes the Borough of Branchville to Provide for the Collection and Treatment of Sewerage	5-27-2010

Municipal ordinances regarding this topic are included in this appendix. The status of such ordinances is as follows:

<b>Table E-2. Ordinances for Dry Conveyances in Sewer Service Areas</b>		
<b>Municipality</b>	<b>Ordinance Name/Number</b>	<b>Adoption Date</b>
Note: we will request information from municipalities and list here		

## Appendix F – Public Community Water Supply Purveyors

### DEP

Permit #	Public Community Water Purveyor	Water Source	Municipality
NJ1901001	ANDOVER BORO WATER DEPT	Groundwater	ANDOVER BORO
NJ1902003	LAKE LENAPE WATER CO	Groundwater	ANDOVER TWP.
NJ1902004	ANDOVER WATER CORP	Groundwater	ANDOVER TWP.
NJ1902005	ASCOT PARK APTS	Groundwater	ANDOVER TWP.
NJ1902007	ROLLING HILLS CONDOMINIUM ASSOC.	Groundwater	ANDOVER TWP.
NJ1902008	ANDOVER NURSING HOME	Groundwater	ANDOVER TWP.
NJ1902009	ANDOVER INTERMEDIATE CARE CNTR	Groundwater	ANDOVER TWP.
NJ1902346	WILLOW GLEN ACADEMY/ABBEY	Groundwater	ANDOVER TWP.
NJ1903001	BRANCHVILLE WATER DEPT	Groundwater	BRANCHVILLE
NJ1905002	CULVER LAKE WATER COMPANY	Groundwater	FRANKFORD
NJ1905004	SUSSEX CNTY HLTH-THE HOMESTEAD	Groundwater	FRANKFORD
NJ1906001	HILLSIDE ESTATES AT FRANKLIN	Groundwater	FRANKLIN
NJ1906002	FRANKLIN BOARD OF PUBLIC	Groundwater	FRANKLIN
NJ1907001	GREEN HILLS EST PROP OWNERS	Groundwater	FREDON TWP.
NJ1907002	AQUA NJ INC-BEAR BROOK	Groundwater	FREDON TWP.
NJ1908001	TRANQUILITY SPRINGS WATER CO	Groundwater*	GREEN TWP.
NJ1909001	HAMBURG BOARD OF PUBLIC WORKS	Groundwater	HAMBURG
NJ1910002	CARRIAGE MOBILE HOMES INC	Groundwater	HAMPTON TWP.
NJ1910003	UNITED WATER HAMPTON INC	Groundwater	HAMPTON TWP.
NJ1911001	WALLKILL WATER CO	Groundwater	HARDYSTON
NJ1911002	LAKE STOCKHOLM INC	Groundwater	HARDYSTON
NJ1911003	LAKE TAMARACK WATER CO	Groundwater	HARDYSTON
NJ1911004	SPARTA TWP WATER SUMMIT	Groundwater	HARDYSTON
NJ1911005	HARDYSTON TWP MUA	Groundwater	HARDYSTON
NJ1911006	HARDYSTON TWP MUA	Groundwater	HARDYSTON
NJ1914002	MONTAGUE WATER CO.	Groundwater	MONTAGUE
NJ1915001	NEWTON WATER & SEWER UTILITY	Surface water	NEWTON TOWN
NJ1916001	OGDENSBURG WATER DEPT	Groundwater	OGDENSBURG
NJ1918003	SPARTA TWP WATER UTILITY - HIGHLANDS	Groundwater	SPARTA TWP.
NJ1918004	SPARTA TWP WATER UTILITY- LAKE MOHAWK	Groundwater	SPARTA TWP.
NJ1918013	SPARTA TWP WATER - SUNSET	Groundwater	SPARTA TWP.
NJ1919001	STANHOPE WATER DEPT	Groundwater	STANHOPE
NJ1920001	STILLWATER WATER DISTRICT 1	Groundwater	STILLWATER
NJ1921001	SUSSEX WATER DEPT	Surface water	SUSSEX BORO
NJ1922001	UNITED WATER BARRY LAKES	Groundwater	VERNON TWP.
NJ1922004	UNITED WATER CLIFFWOODS LAKES	Groundwater	VERNON TWP.
NJ1922005	UNITED WATER GRANDVIEW ESTATES	Groundwater	VERNON TWP.
NJ1922006	UNITED WATER SUSSEX HILLS #1	Groundwater	VERNON TWP.
NJ1922008	AQUA NJ VERNON	Groundwater	VERNON TWP.

**DEP**

<b>Permit #</b>	<b>Public Community Water Purveyor</b>	<b>Water Source</b>	<b>Municipality</b>
NJ1922010	THE VILLAGE OF LAKE GLENWOOD	Groundwater	VERNON TWP.
NJ1922011	UNITED WATER MID-ATLNTIC/SUNSET RIDGE	Groundwater	VERNON TWP.
NJ1922012	UNITED WATER V H LAKE CONWAY	Groundwater	VERNON TWP.
NJ1922013	UNITED WATER V H DC SYSTEM	Groundwater	VERNON TWP.
NJ1922015	UNITED WATER VERNON HILLS	Groundwater	VERNON TWP.
NJ1922017	UNITED WATER HIGHLAND LAKES	Groundwater	VERNON TWP.
NJ1922021	UNITED WATER PREDMORE ESTATES	Groundwater	VERNON TWP.
NJ1922022	UNITED WATER SAMMIS ROAD	Groundwater	VERNON TWP.
NJ1922026	UNITED WATER NJ VERNON VALLEY	Groundwater	VERNON TWP.
NJ1922027	HIDDEN VILLAGE CONDO ASSOCIATION	Groundwater	VERNON TWP.
NJ1924002	SIMMONS WATER CO	Groundwater	WANTAGE TWP.
NJ1924003	REGENCY AT SUSSEX ASSOCIATES	Groundwater	WANTAGE TWP.
NJ1924004	UNITED WATER V H WOODRIDGE ESTATES	Groundwater	WANTAGE TWP.

\* Groundwater under the influence of surface water

## Appendix G – Septic System Maintenance Initiative

With the new Water Quality Management Planning rules adopted in July 2008, Wastewater Management Planning agencies are tasked to establish a Septic Management Plan for areas served by septic systems. For protection of the ground water, regular pumping of septic systems is an important part of ongoing maintenance. The Federal Environmental Protection Agency (EPA) website has a guidance document titled "[Voluntary National Guidelines for Management of Onsite and Decentralized Wastewater Treatment Systems.](#)" In this document is a Management Model for governmental agencies to promote "Homeowner Awareness". The New Jersey DEP has also provided guidance for septic management on their website (see "Resources" list).

Based upon guidance and discussions with DEP staff, Municipal Ordinances are not being required at this time for strict enforcement of periodic pump-outs of septic systems by homeowners. Instead, DEP is looking for an initiative by County and Municipal governments to educate homeowners about septic system maintenance. They would also like to see a septic system inventory established, to "monitor and track compliance with maintenance requirements". The Septic System Maintenance Initiative in Sussex County will be developed to achieve these goals:

1. Provide educational and program information to all residents served by septic systems
2. Post information to County and Municipal websites and in public areas about the benefits and need for routine septic system maintenance and pumping
3. Explain benefits of septic system maintenance, especially for lake communities in Sussex County where protection of water quality is especially important for the communities.

The Septic System Maintenance Initiative will proceed in phases, involving cooperative efforts of County and Municipal officials and staff.

Municipal ordinances regarding this topic are included in this appendix. The status of such ordinances is as follows:

<b>Table G-1. Ordinances for Septic System Maintenance</b>		
<b>Municipality</b>	<b>Ordinance Name/Number</b>	<b>Adoption Date</b>
Byram Township	Septic Management Program, Ordinance BH1-2005 Ordinance BH1-2011	4-26-2005 5-24-2011
Sparta Township	Sewage Disposal System in the Lake Mohawk Septic Management District	1998

## Appendix H – County Planning Board Certification of Municipal Stormwater Plans and Ordinances

<u>Municipality</u>	<u>County</u>	<u>Tier</u>	<u>Approval Date of Adopted Stormwater Mangmnt Plan</u>	<u>Approval Date Stormwater Ordinance</u>
Andover Borough	Sussex		10/3/2005	5/1/2006
Andover Township	Sussex	A	7/11/2005	12/4/2006
Branchville Borough	Sussex	B	10/3/2005	5/1/2006
Byram Township	Sussex	A	10/3/2005	5/1/2006
Frankford Township	Sussex	B	10/3/2005	10/20/2006
Franklin Borough	Sussex	B	7/11/2005	5/1/2006
Fredon Township	Sussex	B	10/3/2005	5/1/2006
Green Township	Sussex	B	7/11/2005	5/1/2006
Hamburg Borough	Sussex	B	7/11/2005	12/4/2006
Hampton Township	Sussex	B	9/12/2005	6/5/2006
Hardyston Township	Sussex	B	7/11/2005	5/1/2006
Hopatcong Borough	Sussex	A	7/11/2005	10/2/2006
Lafayette Township	Sussex	B	2/6/2006	10/20/2006
Montague Township	Sussex	B	9/11/2006	12/4/2006
Town of Newton	Sussex	A	10/3/2005	5/1/2006
Ogdensburg Borough	Sussex	B	9/19/2005*	DEP letter
Sandyston Township	Sussex	B	10/3/2005	6/5/2006
Sparta Township	Sussex	A	7/11/2005	12/4/2006
Stanhope Borough	Sussex	A	7/11/2005	5/1/2006
Stillwater Township	Sussex	B	7/11/2005	7/2/2007
Sussex Borough	Sussex	B	*	10/26/2006
Vernon Township	Sussex	B	9/12/2005	5/1/2006
Walpack Twp	Sussex	B	N.A.	N.A.
Wantage Township	Sussex	B	10/3/2005	5/1/2006





## Appendix I – Zoning Ordinance and Municipal Master Plan Status

Municipal ordinances regarding this topic are included in this appendix. The status of such ordinances is as follows:

MUNICIPALITY	CURRENT ZONING MAP	SUBSEQUENT ZONING ORDINANCE CHANGES
ANDOVER BOROUGH	Jan. 2004	
ANDOVER TOWNSHIP	Nov. 2009	Ord. to create C-1 zone, April 2011 Ord. to remove PRC zone, Nov. 2011 Ord. for lot area in SR zone
BRANCHVILLE BOROUGH	Jan. 1998	Ord. to change R-3 zone near Rt. 206, Dec. 2012
FRANKFORD TOWNSHIP	April 2010	Ord. for CED zones, April 2010
FRANKLIN BOROUGH	Sept. 2010	Ord. for Mixed Active Adult Housing, May 2007 Ord. for NC Zone, other zoning map changes, 2010
FREDON TOWNSHIP	Oct. 2010	Ord. adopting new Zoning Map, Nov. 2010
GREEN TOWNSHIP	Dec. 2008	No changes
HAMBURG BOROUGH	April 1991	No changes
HAMPTON TOWNSHIP	Feb. 2001	No changes
HARDYSTON TOWNSHIP	July 2007	No changes
LAFAYETTE TOWNSHIP	Dec. 2010	Feb. 2012 -
MONTAGUE TOWNSHIP	Jan. 2004	
NEWTON, TOWN OF	New Transect Zones Map, 2013	New Form-Based Code Zoning Ordinance, 2012

OGDENSBURG BOROUGH	1999	No changes
SANDYSTON TOWNSHIP	2000	No changes
SPARTA TOWNSHIP	Feb. 2005	Ord.to add Planned Village Core Zone, 2011 Ord. to add Planned Dev. Resource Management zones, 2012
STANHOPE BOROUGH	May 1999	Ord. adopted in 2005 for Village Age Restricted Zone
STILLWATER TOWNSHIP	May 2001	No changes
SUSSEX BOROUGH	1993	No changes
VERNON TOWNSHIP	2009	No changes
WALPACK TOWNSHIP	1966	No changes
WANTAGE TOWNSHIP	Dec. 2006	Ord. 2010-14 for Planned Commercial Dev.

**Appendix J - NJEP Overview Of Build-Out Model To Estimate  
New Sewer Flows And Septic Yields**

**Appendix K – Population, Housing Units and Density  
Municipalities in Sussex County, 2010**

**Appendix K – Population, Housing Units and Density:  
2010 for Sussex County Municipalities**

Data Set: U.S. Census 2010  
Geographic Area: New Jersey -- State, County and  
Municipality

Geographic area	Population	Housing units	Occupied	Vacant	Area in square miles			Density per square mile of land area	
					Total area	Water area	Land area	Population	Housing units
<b>Sussex County</b>	<b>149,265</b>	<b>62,057</b>	<b>54,752</b>	<b>7,305</b>	<b>535.74</b>	<b>16.73</b>	<b>519.01</b>	<b>287.59</b>	<b>119.57</b>
Andover borough	606	263	241	22	1.47	0.02	1.45	417.27	181.09
Andover township	6,319	2,181	2,070	111	20.69	0.73	19.96	316.64	109.29
Branchville borough	841	386	364	22	0.60	0.01	0.59	1,419.21	651.39
Byram township	8,350	3,207	2,926	281	22.26	1.19	21.07	396.24	152.19
Frankford township	5,565	2,520	2,046	474	35.44	1.42	34.02	163.57	74.07
Franklin borough	5,045	2,136	1,936	200	4.57	0.07	4.50	1,121.62	474.88
Fredon township	3,437	1,289	1,207	82	18.00	0.28	17.72	193.96	72.74
Green township	3,601	1,251	1,181	70	16.26	0.27	15.98	225.30	78.27
Hamburg borough	3,277	1,476	1,364	112	1.16	0.02	1.14	2,870.38	1,292.85
Hampton township	5,196	2,200	2,021	179	25.30	0.92	24.38	213.16	90.25
Hardyston township	8,213	3,783	3,255	528	32.64	0.67	31.97	256.88	118.32

Hopatcong borough	15,147	6,296	5,653	643	12.25	1.39	10.85	1,395.46	580.04
Lafayette township	2,538	919	875	44	18.05	0.09	17.96	141.30	51.16
Montague township	3,847	1,802	1,535	267	45.38	1.38	44.00	87.44	40.96
Newton town	7,997	3,479	3,170	309	3.17	0.02	3.15	2,542.20	1,105.95
Ogdensburg borough	2,410	905	864	41	2.33	0.05	2.28	1,055.40	396.32
Sandyston township	1,998	988	788	200	43.26	0.74	42.52	46.99	23.24
Sparta township	19,722	7,423	6,868	555	38.97	2.02	36.94	533.86	200.94
Stanhope borough	3,610	1,472	1,396	76	2.19	0.35	1.84	1,966.31	801.78
Stillwater township	4,099	1,930	1,553	377	28.38	1.32	27.06	151.47	71.32
Sussex borough	2,130	1,005	899	106	0.62	0.03	0.59	3,615.92	1,706.10
Vernon township	23,943	10,958	8,622	2,336	70.59	2.35	68.23	350.90	160.59
Walpack township	16	15	8	7	24.70	0.65	24.05	0.67	0.62
Wantage township	11,358	4,173	3,910	263	67.48	0.73	66.75	170.15	62.51

**Appendix L – Population Projections for NJ Counties, 2015 – 2030**

## Appendix M – Watershed Restoration Plan Summaries

### THE PAPA KATING CREEK & CLOVE ACRES LAKE / CLOVE BROOK WATERSHED RESTORATION PLANS

#### **Background Information:**

The *New Jersey 2002, 2004, and 2006 Integrated Water Quality Monitoring and Assessment Reports* identified the Papakating Creek, the Clove Brook, and Clove Acres Lake as impaired waterways for non-attainment of total phosphorus. In 2003, the New Jersey Department of Environmental Protection (NJDEP) proposed and EPA approved five Total Maximum Daily loads (TMDLs) to address fecal coliform in the Papakating Creek Watershed. In April 2004, the New Jersey Department of Environmental Protection (NJDEP) proposed and U.S. Environmental Protection Agency (USEPA) approved two TMDLs to 1) address total phosphorus in the Papakating Creek Watershed (for six of the seven HUC 14 subwatersheds that comprise the entire Watershed) and 2) to address total phosphorus in the Clove Acres Lake / Lakeshed and Clove Brook streamshed (the seventh Papakating Creek HUC 14 subwatershed). In response to the NJDEP and USEPA actions, the Wallkill River Watershed Management Group (WRWVG), under the administrative auspices of the Sussex County Municipal Utilities Authority (SCMUA), received approval for two fiscal year 2005 319(h) Grants to address the development of separate, but intertwined Restoration and Protection Plans for the Papakating Creek<sup>2</sup> Watershed and the Clove Acres Lake / Lakeshed and the Clove Brook Streamshed. The approved TMDLs were to serve as the basis for the development of Restoration and Protection Plans aimed at identifying the sources of total phosphorus, setting goals for pollutant annual load reductions, and implementing private and community restoration measures, in order to attain the applicable Surface Water Quality Standards (SWQS).

**Restoration Plan Goals:** The total phosphorus (TP) reduction goals developed by the NJDEP, which were later modified by the WRWVG and approved by NJDEP, resulted in the following total phosphorus reduction goals for the Papakating Creek and Clove Brook Restoration Plans:

- Papakating Creek Watershed (six HUC 14 sub-basins): a reduction of 6,841 pounds / year of TP, which is a 43% reduction in the estimated 2004 total TP loading of 15,909 pounds/year (7,231 kilograms/year)
- Clove Brook sub-basin (the seventh sub-basin comprising the Papakating Creek Watershed): a reduction of 2,620 pounds / year of TP, which is a 44.5% reduction in the estimated 2004 total TP loading of 5,887 pounds/year (2,676 kilograms/year)
- Papakating Creek Watershed (all seven HUC 14 sub-basins): in combination with the Clove Brook Restoration Plan, a reduction of 9,459.5 pounds/year, which is a 43.4% reduction in the estimated 2004 total TP loading of 21,795

Water quality monitoring efforts and extensive pollutant source-tracking surveys conducted within the Papakating Creek and Clove Acres Lake / Clove Brook Watersheds during the Restoration Plan development phase have identified nonpoint pollution as the predominate issue of concern versus point source (end of pipeline). The key nonpoint sources of TP were identified as: streambank erosion, agricultural land erosion and drainage, undeveloped land erosion and drainage, improper /



overuse of both agricultural and residential fertilizers, stormwater runoff from developed and undeveloped lands and roads, typical urban area sources (one specific area) and, to a lesser extent, septic systems. In addition, major storm events (rainfall exceeding two to three inches/day) have been observed to be a key factor in the transport of TP to the surface waters of these Watersheds.

In August 2008, the WRWVG formally submitted complete Watershed Restoration Plans for the Papakating Creek and Clove Acres Lake Watersheds to NJDEP for review and approval. The Restoration Plan for the Clove Acres Lake Watershed also included a comprehensive Characterization Report and an independent but supportive Restoration Plan specifically for Clove Acres Lake. These components were prepared by Princeton Hydro, LLC. Together, these Plans offer a comprehensive strategy that includes the identification of numerous specific Watershed-based and in-lake management strategies, techniques, and projects that, if implemented, will serve to reduce the annual TP loads and restore the water quality of these Watersheds.

In January 2009, both Watershed Restoration plans were formally accepted and approved by NJDEP and as a result, NJDEP awarded additional grant funding to the WRWVG / SCMUA to begin the implementation of both Plans. This funding, which comes from the NJDEP's Non Point Source Pollution Control Grant Program, is currently allowing the WRWVG to serve as an implementation agent / entity providing the overall leadership and coordination of all the tasks related to successful planning and execution of the identified restoration projects and initiatives.

Since June 2009, the Wallkill River Watershed Management Group (WRWVG), under the fiscal guidance of the Sussex County Municipal Utilities Authority (SCMUA), has diligently worked to coordinate all of the efforts associated with the Grant Agreement entitled, "*Section 319(h) Non-point Source Pollution Control and Management Implementation Grant: Implementation of Clove Acres / Papakating Creek Watershed Plans.*" This has included facilitating the necessary tasks and efforts to build relationships and establish cooperative agreements with key project partners, coordinating required field surveying initiatives and design studies, developing bid packages, documenting construction activities, assisting with engineering design plans for agricultural BMPs, and seeking and securing outside funding resources for leverage with existing 319(h) grant funds.

The SCMUA-WRWVG has become known throughout all of Sussex County as a primary local resource for area stakeholders in matters relating to water quality and water resource management. With the development of the Watershed Restoration Plans for the Papakating Creek and Clove Acres Lake / Clove Brook Watersheds as well as the work that has already been accomplished implementing these Plans, the WRWVG has become intrinsically involved in the local watershed community and is continuously working to coordinate and drive "on-the-ground" implementation efforts designed to achieve the required pollutant load reductions in order to meet the State surface water quality standards.

## Upper Paulins Kill Watershed Restoration Plan

In October of 2012, the Wallkill River Watershed Management Group, under the administrative auspices of the Sussex County Municipal Utilities Authority completed the development of a Watershed Restoration Plan for the Upper Paulins Kill Watershed. The Upper Paulins Kill Watershed is one of two U.S. Geological Survey (USGS) HUC 11 Watersheds that comprise the Paulins Kill Watershed, which covers approximately 113,184 acres (176.85 square miles) in Sussex and Warren Counties. The Upper Paulins Kill Watershed as defined in the Watershed Restoration Plan is comprised of five HUC 14 sub-basins in their entirety and a portion of a sixth HUC 14. The watershed area includes approximately 32,578 acres or 50.9 square miles of total area and encompasses all or portions of the following municipalities: Andover Township, Branchville Borough, Frankford Township, Fredon Township, Hampton Township, Lafayette Township, Sparta Township, the Town of Newton and approximately 24 acres within Sandyston Township.

The New Jersey Department of Environmental Protection's 2004, 2006, 2008, and 2010 *Integrated Water Quality Monitoring and Assessment Reports* identify the Paulins Kill within the targeted project area as an impaired waterway for non-attainment of *E.coli*, total phosphorus, dissolved oxygen, aquatic life, and arsenic at specific locations. In response to an identified impairment for *E.coli*, NJDEP developed a TMDL for *E.coli*, within the Upper Paulins Kill, which was adopted in September 2005. In 2007, the WRWMG was awarded a 319(h) non-point source pollution control grant from NJDEP to develop a watershed restoration plan for the Upper Paulins Kill Watershed targeting both the *E.coli* and total phosphorus impairments. As part of this effort, the WRWMG and various partners conducted chemical sampling, extensive field characterization and assessments, and performed related pollutant modeling analysis that resulted in the identification and development of the following pollutant reduction goals in order to meet the required NJDEP Surface Water Quality Standards (SWQS) for total phosphorus and fecal coliform / *E.coli*.

- **Total Phosphorus (TP) - (Upper Paulins Kill Watershed - approximately six HUC 14s):** Reduction of 6,329 pounds/year of TP, which is a 33.4% reduction in the estimated 2011 total TP loading of 18,950 pounds/year (8,614 kilograms/year). The targeted NJDEP SWQS is not to exceed 0.1 mg/l concentrations.
- **Fecal Coliform / *E.coli* (Upper Paulins Kill Watershed – approximately six HUC 14s):** A TMDL developed by the NJDEP specifies a reduction in fecal coliform / *E.coli* loading of 98% in order to achieve the desired SWQS. The targeted NJDEP SWQS for fecal coliform is that fecal coliform shall not exceed a geometric average of 200 counts/100 ml, nor shall more than 10% of the total samples taken during any 30-day period exceed 400 counts/100 ml. The SWQS for *E.coli* states that *E.coli* shall not exceed a geometric mean of 126 counts/100 ml or a single sample maximum of 235 counts/100ml.

Throughout the Restoration Plan development process, the WRWMG conducted an extensive pollutant source-tracking survey to identify potential sources and causes for the TP and fecal coliform / *E.coli* impairments. Within the defined watershed boundaries, nonpoint pollution is the predominate issue of concern versus point source pollution. It was concluded that the genesis of key nonpoint sources of TP emanate as a result of erosion and sedimentation from stream banks, agricultural lands and undeveloped lands, improper/overuse of both agricultural and residential fertilizer applications, stormwater runoff from developed and undeveloped lands and roads, urban area sources (one specific area) and, to a lesser extent, septic systems. It was also concluded that the intensity of loading for a given period of time was strongly influenced by the severity of

precipitation/storm events, particularly when rainfall exceeds one to two inches/day. Sources of attribution of *E.coli* are wildlife, animal, and to a lesser extent, human.

Development of a holistic Management Plan that addresses the stated pollutant sources, mitigation of the impacts identified, and achievement of the desired goals is a complex and challenging undertaking that will require many years of concerted, targeted effort by the entire Watershed community. As part of the development process for the Upper Paulins Kill Watershed Restoration Plan, the WRWVG and various project partners conducted extensive stream sampling efforts, intensive pollutant source tracking studies, detailed field investigations, and comprehensive data analyses, all of which contributed to the identification of potential implementation projects for inclusion in the Restoration Plan. The data and information gathered as a result of these project efforts, combined with real-time field experiences and observations made during significant storm events, anecdotal stories from watershed stakeholders, and priority issues identified at local municipal and county public meetings have all played a significant role in the helping the WRWVG to identify numerous high priority implementation projects for inclusion into the Upper Paulins Kill Watershed Restoration Plan.

In September 2013, the NJDEP awarded the SCMUA-WRWVG a SFY2013 319(h) Non-Point Source Pollution Control Grant to begin implementing the ***Upper Paulins Kill Watershed Restoration Plan***. As part of the grant agreement funded by NJDEP, The SCMUA-WRWVG is now coordinating three priority watershed implementation programs as well as “on-the ground” restoration projects, aimed at reducing non-point source pollutant loadings, improving water quality, and promoting long-term watershed health.

### **PROGRAM 1: Agricultural Outreach and Assistance Program for the Upper Paulins Kill Watershed**

#### **Goal:**

Identify and Coordinate Overall Efforts to Implement Agricultural Best Management Practices and Water Quality Improvement Projects

### **PROGRAM 2: WRWVG “Urban” Stormwater Management Outreach and Assistance Program**

#### **Goal:**

Implementation of stormwater management programs and improvement projects including rain gardens, infiltration, and bio-infiltration projects along the Paulins Kill mainstem and associated tributaries with initial emphasis on the urban headwaters in the Town of Newton.

**PROGRAM 3: Riparian Ecosystem Enhancement Program for the Upper Paulins Kill Watershed**

**Goal:**

Implementation of vegetative streambank stabilization and riparian buffer enhancement projects along the Paulins Kill mainstem and its tributaries. (Note: Program #3 will build upon the success of multiple existing riparian buffer projects implemented during the course of development of the Upper Paulins Kill Watershed Restoration Plan).



## **Appendix N – Resolutions with Preliminary Approval for Plan Amendments**

### **“Significant Actions” - Plan Amendments (listed on page 12 of County WMP)**

#### **Preliminary Approval granted by Sussex County Board of Chosen Freeholders**

**Resolutions for these Plan Amendments are attached on following pages:**

##### **Abandonment of Wastewater Treatment Facility – Big ‘N’ Plant, Martin Property, Route 206, Hampton Twp.**

Preliminary Approval by Sussex County Freeholder Resolution, November 7, 2007  
Preliminary Approval by Sussex County Water Quality PAC Resolution, Sept. 20, 2007  
Hampton Township Resolution, May 8, 2007

##### **Expanded Sewer Service Area for Sussex County MUA – Hampshire Co. property, Route 23, Wantage**

Preliminary Approval by Sussex County Freeholder Resolution, August 15, 2012  
Preliminary Approval by Sussex County Water Quality PAC Resolution, July 12, 2012  
Wantage Township Resolution, Sept. 8, 2011  
SCMUA Statement of Consent Resolution, March 20, 2013

##### **Expanded Sewer Service Area for Sussex County MUA – “Wantage Plaza”, Main Land Sussex property, Route 23, Wantage**

Preliminary Approval by Sussex County Freeholder Resolution, June 11, 2014  
Preliminary Approval by Sussex County Water Quality PAC Resolution, May 8, 2014  
Wantage Township Resolution, October 10, 2013  
SCMUA Statement of Consent Resolution, August 6, 2014

##### **Expanded Sewer Service Area for Sussex County MUA – Bicsak Brothers property, Route 23 and Blair Road, Wantage**

Preliminary Approval by Freeholder Resolution dated June 11, 2014  
Preliminary Approval by Sussex County Water Quality PAC Resolution, May 8, 2014  
Wantage Township Resolution, October 24, 2013  
SCMUA Statement of Consent Resolution, August 6, 2014

##### **Revised Sewer Service Area for Maione Property, Route 23, Wantage Twp. (Map #77)**

DEP issued a letter dated December 2012 that authorized septic systems on nine subdivided lots on Boulder Hills Boulevard - those lots were removed from the sewer service area.

