



**APPENDIX M
TREATMENT SYSTEM ALTERNATIVES
EVALUATION**

Wastewater Treatment Alternative 8A - All Flow to DTMA SW WWTP

To DTMA SW WWTP			
Initial EDUs	Initial Flow - GPD	Build-out EDUs	Build-out Flow - GPD
814	229,830	3,702	993,650

From DTMA Letter dated March 24, 2014

DTMA SW WWTP Capacity	600,000 GPD
Assumed 2016 Calendar Year Flow to WWTP	360,000 GPD
Flow capacity available for Londerry Township	240,000 GPD
DTMA Capacity Fees:	\$1,650.00 Per each Single-family house [ASSUME FOR ANALYSIS]
	\$1,357.00 for each unit in a multi-family apartment building
DTMA Sewer User Rates:	
Non-Metered Accounts	\$38.25 Flat rate billing per month [ASSUME FOR ANALYSIS]
Metered Accounts	\$10.50 Flat charge per billing per month \$5.00 Consumption charge per 1,000 gallons of water
DTMA Planned Rate Increases	6.00% Increase for January 1, 2015 4.00% Increase for January 1, 2016

Initial Flow to SW WWTP

DTMA WWTP Upgrade Capacity Required, GPD	0 Sufficient capacity available
DTMA WWTP Upgrade Costs	\$0.00
DTMA Nutrient Credits Needed	\$79,931.68 Refer to Analysis Below
DTMA Capacity Fees	\$1,343,100.00
DTMA Sewer User Rates - Annual	\$411,885.30

Build-out Flow to SW WWTP

DTMA WWTP Upgrade Capacity Required, GPD	753,650
DTMA WWTP Upgrade Costs, Hydraulic Only	\$4,710,312.50 Includes 25% Project Costs
DTMA WWTP Upgrade Costs, NRT	\$7,536,500.00 Includes 25% Project Costs
DTMA Nutrient Credits Needed	\$289,288.83 Refer to Analysis Below
DTMA Capacity Fees	\$6,108,300.00
DTMA Sewer User Rates - Annual	\$1,873,217.92

Nutrient Analysis

DTMA WWTP Nutrient Cap Loads:	10,959 lbs TN/year 1,461 lbs TP/year
Current DTMA WWTP Performance - Effluent:	25 mg/L TN 1.5 mg/L TP

Assumed DTMA Nutrient Discharge with Initial Flows:	44,888 lbs TN/year	
	2,693 lbs TP/year	
Estimated Exceedance of CAP Load with Initial Flows:	33,929 lbs TN/year	
	1,232 lbs TP/year	
OLDS Retirement Offsets - Initial Flows	6325 lbs TN/year	
	0 lbs TP/year	
Package WWTP Retirement Offsets - Initial Flows	5670 lbs TN/year	
	329 lbs TP/year	
Nutrient Credit Purchase Required	21,934 lbs TN/year	
	904 lbs TP/year	

With Hydraulic Upgrade Only

Assumed DTMA Nutrient Discharge with Build-out Flows:	103,016 lbs TN/year	
	6,181 lbs TP/year	
Estimated Exceedance of CAP Load with Build-out Flows:	92,057 lbs TN/year	
	4,720 lbs TP/year	
OLDS Retirement Offsets - Build-out Flows	8125 lbs TN/year	
	0 lbs TP/year	
Package WWTP Retirement Offsets - Build-out Flows	5670 lbs TN/year	
	329 lbs TP/year	
Nutrient Credit Purchase Required	78,263 lbs TN/year	
	4,391 lbs TP/year	

With BNR Upgrade

Assumed DTMA WWTP Performance - Effluent:	3 mg/L TN	
	0.3 mg/L TP	
Assumed DTMA Nutrient Discharge with Build-out Flows:	12,362 lbs TN/year	
	1,236 lbs TP/year	
Estimated Exceedance of CAP Load with Build-out Flows:	1,403 lbs TN/year	
	-225 lbs TP/year	
OLDS Retirement Offsets - Build-out Flows	8125 lbs TN/year	
	0 lbs TP/year	
Package WWTP Retirement Offsets - Build-out Flows	5670 lbs TN/year	
	329 lbs TP/year	
Nutrient Credit Purchase Required	-12,392 lbs TN/year	
	-554 lbs TP/year	

Wastewater Treatment Alternative 8B - All Flow to MBA

To Middletown Borough Authority WWTP			
Initial EDUs	Initial Flow - GPD	Build-out EDUs	Build-out Flow - GPD
814	229,830	3,702	993,650

From MBA Letter dated July 10, 2014

MBA WWTP Capacity	2,200,000 GPD
2013 ADF	1,228,000 GPD
Flow available for Londerry Township	408,000 GPD
MBA Tapping Fees	\$1,175.00 Per EDU
MBA Sewer User Rates	\$4.00 per 1000 gallons

Initial Flow to MBA WWTP

MBAWWTP Upgrade Capacity Required, GPD	0 Sufficient capacity available
MBA WWTP Upgrade Costs	\$0.00
MBA Nutrient Credits Needed	\$0.00 Refer to Analysis Below
MBA Tapping Fees	\$956,450.00
MBA Sewer User Rates - Annual	\$335,551.80

Build-out Flow to MBA WWTP

MBA WWTP Upgrade Capacity Required, GPD	585,650
MBA WWTP Upgrade Costs, Hydraulic Only	\$3,660,312.50 Includes 25% Project Costs
MBA WWTP Upgrade Costs, NRT	\$5,856,500.00 Includes 25% Project Costs
MBA Nutrient Credits Needed	\$0.00 Refer to Analysis Below
MBA Tapping Fees	\$4,349,850.00
MBA Sewer User Rates - Annual	\$1,450,729.00

Nutrient Analysis

MBA WWTP Nutrient Cap Loads:	40,182 lbs TN/year
	5,358 lbs TP/year
Current MBA WWTP Performance - Effluent:	5 mg/L TN
	0.5 mg/L TP
Assumed MBA Nutrient Discharge with Initial Flows:	22,189 lbs TN/year
	2,219 lbs TP/year
Estimated Exceedance of CAP Load with Initial Flows:	-17,993 lbs TN/year
	-3,139 lbs TP/year
OLDS Retirement Offsets - Initial Flows	6325 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Initial Flows	5670 lbs TN/year
	329 lbs TP/year
Nutrient Credit Purchase Required	-29,988 lbs TN/year
	-3,467 lbs TP/year

With Hydraulic Upgrade Only

Assumed MBA Nutrient Discharge with Build-out Flows:	33,815 lbs TN/year	
	3,381 lbs TP/year	
Estimated Exceedance of CAP Load with Build-out Flows:	-6,367 lbs TN/year	
	-1,976 lbs TP/year	
OLDS Retirement Offsets - Build-out Flows	8125 lbs TN/year	
	0 lbs TP/year	
Package WWTP Retirement Offsets - Build-out Flows	5670 lbs TN/year	
	329 lbs TP/year	
Nutrient Credit Purchase Required	-20,162	lbs TN/year
	-2,305	lbs TP/year

With BNR Upgrade

Assumed MBA WWTP Performance - Effluent:	3 mg/L TN	
	0.3 mg/L TP	
Assumed MBA Nutrient Discharge with Build-out Flows:	20,289 lbs TN/year	
	2,029 lbs TP/year	
Estimated Exceedance of CAP Load with Build-out Flows:	-19,893 lbs TN/year	
	-3,329 lbs TP/year	
OLDS Retirement Offsets - Build-out Flows	8125 lbs TN/year	
	0 lbs TP/year	
Package WWTP Retirement Offsets - Build-out Flows	5670 lbs TN/year	
	329 lbs TP/year	
Nutrient Credit Purchase Required	-33,688	lbs TN/year
	-3,657	lbs TP/year

Wastewater Treatment Alternative 8C - Split Flow Between MBA & DTMA**DTMA Component**

To DTMA SW WWTP			
Initial EDUs	Initial Flow - GPD	Build-out EDUs	Build-out Flow - GPD
578	164,970	1,736	468,790

From DTMA Letter dated March 24, 2014

DTMA SW WWTP Capacity	600,000 GPD
Assumed 2016 Calendar Year Flow to WWTP	360,000 GPD
Flow available for Londerry Township	240,000 GPD
DTMA Capacity Fees	\$1,650.00 Per each Single-family house [ASSUME FOR ANALYSIS] \$1,357.00 for each unit in a multi-family apartment building
DTMA Sewer User Rates:	
Non-Metered Accounts	\$38.25 Flat rate billing per month [ASSUME FOR ANALYSIS]
Metered Accounts	\$10.50 Flat charge per billing per month \$5.00 Consumption charge per 1,000 gallons of water
DTMA Planned Rate Increases	6.00% Increase for January 1, 2015 4.00% Increase for January 1, 2016

Initial Flow to SW WWTP

DTMA WWTP Upgrade Capacity Required, GPD	0 Sufficient capacity available
DTMA WWTP Upgrade Costs	\$0.00
DTMA Nutrient Credits Needed	\$92,406.59 Refer to Analysis Below
DTMA Capacity Fees	\$953,700.00
DTMA Sewer User Rates - Annual	\$292,468.92

Build-out Flow to SW WWTP

DTMA WWTP Upgrade Capacity Required, GPD	228,790
DTMA WWTP Upgrade Costs, Hydraulic Only	\$1,429,937.50 Includes 25% Project Costs
DTMA WWTP Upgrade Costs, NRT	\$2,287,900.00 Includes 25% Project Costs
DTMA Nutrient Credits Needed	\$171,887.22 Refer to Analysis Below
DTMA Capacity Fees	\$2,864,400.00
DTMA Sewer User Rates - Annual	\$878,418.78

Nutrient Analysis

DTMA WWTP Nutrient Cap Loads:	10,959 lbs TN/year 1,461 lbs TP/year
Current DTMA WWTP Performance - Effluent:	25 mg/L TN 1.5 mg/L TP

Assumed DTMA Nutrient Discharge with Initial Flows:	39,952 lbs TN/year
	2,397 lbs TP/year
Estimated Exceedance of CAP Load with Initial Flows:	28,993 lbs TN/year
	936 lbs TP/year
OLDS Retirement Offsets - Initial Flows	2975 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Initial Flows	469 lbs TN/year
	83 lbs TP/year
Nutrient Credit Purchase Required	25,549 lbs TN/year
	853 lbs TP/year

With Hydraulic Upgrade Only

Assumed DTMA Nutrient Discharge with Build-out Flows:	63,073 lbs TN/year
	3,784 lbs TP/year
Estimated Exceedance of CAP Load with Build-out Flows:	52,114 lbs TN/year
	2,323 lbs TP/year
OLDS Retirement Offsets - Build-out Flows	4775 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Build-out Flows	469 lbs TN/year
	83 lbs TP/year
Nutrient Credit Purchase Required	46,870 lbs TN/year
	2,240 lbs TP/year

With BNR Upgrade

Assumed DTMA WWTP Performance - Effluent:	3 mg/L TN
	0.3 mg/L TP
Assumed DTMA Nutrient Discharge with Build-out Flows:	7,569 lbs TN/year
	757 lbs TP/year
Estimated Exceedance of CAP Load with Build-out Flows:	-3,390 lbs TN/year
	-704 lbs TP/year
OLDS Retirement Offsets - Build-out Flows	4775 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Build-out Flows	469 lbs TN/year
	83 lbs TP/year
Nutrient Credit Purchase Required	-8,634 lbs TN/year
	-787 lbs TP/year

Wastewater Treatment Alternative 8C - Split Flow Between MBA & DTMA
MBA Component

To Middletown Borough Authority WWTP			
Initial EDUs	Initial Flow - GPD	Build-out EDUs	Build-out Flow - GPD
236	64,860	1,966	524,860

From MBA Letter dated July 10, 2014

MBA WWTP Capacity	2,200,000 GPD
2013 ADF	1,228,000 GPD
Flow available for Londerry Township	408,000 GPD
MBA Tapping Fees	\$1,175.00 Per EDU
MBA Sewer User Rates	\$4.32 per 1000 gallons

Initial Flow to MBA WWTP

MBAWWTP Upgrade Capacity Required, GPD	0 Sufficient capacity available
MBA WWTP Upgrade Costs	\$0.00
MBA Nutrient Credits Needed	\$0.00 Refer to Analysis Below
MBA Tapping Fees	\$277,300.00
MBA Sewer User Rates - Annual	\$102,271.25

Build-out Flow to MBA WWTP

MBA WWTP Upgrade Capacity Required, GPD	116,860
MBA WWTP Upgrade Costs, Hydraulic Only	\$730,375.00 Includes 25% Project Costs
MBA WWTP Upgrade Costs, NRT	\$1,168,600.00 Includes 25% Project Costs
MBA Nutrient Credits Needed	\$0.00 Refer to Analysis Below
MBA Tapping Fees	\$2,310,050.00
MBA Sewer User Rates - Annual	\$827,599.25

Nutrient Analysis

MBA WWTP Nutrient Cap Loads:	40,182 lbs TN/year
	5,358 lbs TP/year
Current MBA WWTP Performance - Effluent:	5 mg/L TN
	0.5 mg/L TP
Assumed MBA Nutrient Discharge with Initial Flows:	19,678 lbs TN/year
	1,968 lbs TP/year
Estimated Exceedance of CAP Load with Initial Flows:	-20,504 lbs TN/year
	-3,390 lbs TP/year
OLDS Retirement Offsets - Initial Flows	3350 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Initial Flows	5201 lbs TN/year
	246 lbs TP/year
Nutrient Credit Purchase Required	-29,055 lbs TN/year
	-3,635 lbs TP/year

With Hydraulic Upgrade Only

Assumed MBA Nutrient Discharge with Build-out Flows:	26,679 lbs TN/year	
	2,668 lbs TP/year	
Estimated Exceedance of CAP Load with Build-out Flows:	-13,503 lbs TN/year	
	-2,690 lbs TP/year	
OLDS Retirement Offsets - Build-out Flows	3350 lbs TN/year	
	0 lbs TP/year	
Package WWTP Retirement Offsets - Build-out Flows	5201 lbs TN/year	
	246 lbs TP/year	
Nutrient Credit Purchase Required	-22,054	lbs TN/year
	-2,935	lbs TP/year

With BNR Upgrade

Assumed MBA WWTP Performance - Effluent:	3 mg/L TN	
	0.3 mg/L TP	
Assumed MBA Nutrient Discharge with Build-out Flows:	16,008 lbs TN/year	
	1,601 lbs TP/year	
Estimated Exceedance of CAP Load with Build-out Flows:	-24,174 lbs TN/year	
	-3,757 lbs TP/year	
OLDS Retirement Offsets - Build-out Flows	3350 lbs TN/year	
	0 lbs TP/year	
Package WWTP Retirement Offsets - Build-out Flows	5201 lbs TN/year	
	246 lbs TP/year	
Nutrient Credit Purchase Required	-32,725	lbs TN/year
	-4,002	lbs TP/year

Wastewater Treatment Alternative 8D - All Flow to Regionalized WWTP

To Regionalized WWTP			
Initial EDUs	Initial Flow - GPD	Build-out EDUs	Build-out Flow - GPD
814	229,830	3,702	993,650

New WWTP Initial Capacity 325,000 GPD
 Initial Flow to WWTP 229,830 GPD
 Flow capacity available for Londerry Township 95,170 GPD
 Capacity Fees (assumed) \$0.00 Per each Single-family house
 Sewer User Rates (assumed) \$5.00 per 1,000 gallons

Initial Flow to WWTP

Nutrient Credits Needed \$1,298.77 Refer to Analysis Below
 Capacity Fees \$0.00
 Sewer User Rates - Annual \$419,439.75

Build-out Flow to WWTP

WWTP Upgrade Capacity Required, GPD 898,480
 WWTP Upgrade Costs, Hydraulic Only \$12,650,000.00 Includes 25% Project Costs
 Nutrient Credits Needed \$3,502.14 Refer to Analysis Below
 Capacity Fees \$0.00
 Sewer User Rates - Annual \$1,813,411.25

Nutrient Analysis

WWTP Nutrient Cap Loads: 0 lbs TN/year
 0 lbs TP/year
 Assumed WWTP Performance - Effluent: 4 mg/L TN
Ref: Dutchland 1 mg/L TP

Assumed Nutrient Discharge with Initial Flows:	2,799 lbs TN/year	
	700 lbs TP/year	
Estimated Exceedance of CAP Load with Initial Flows:	2,799 lbs TN/year	
	700 lbs TP/year	
OLDS Retirement Offsets - Initial Flows	6325 lbs TN/year	
	0 lbs TP/year	
Package WWTP Retirement Offsets - Initial Flows	5670 lbs TN/year	
	329 lbs TP/year	
Nutrient Credit Purchase Required	-9,196	lbs TN/year
	371	lbs TP/year

With Hydraulic Upgrade Only

Assumed Nutrient Discharge with Build-out Flows:	12,099 lbs TN/year	
	3,025 lbs TP/year	
Estimated Exceedance of CAP Load with Build-out Flows:	12,099 lbs TN/year	
	3,025 lbs TP/year	
OLDS Retirement Offsets - Build-out Flows	8125 lbs TN/year	
	0 lbs TP/year	
Package WWTP Retirement Offsets - Build-out Flows	5670 lbs TN/year	
	329 lbs TP/year	
Nutrient Credit Purchase Required	-1,696	lbs TN/year
	2,696	lbs TP/year

Wastewater Treatment Alternative 8E - Flow to Decentralized WWTP and MBA

To Middletown Borough Authority WWTP			
Initial EDUs	Initial Flow - GPD	Build-out EDUs	Build-out Flow - GPD
236	64,860	1,966	524,860

From MBA Letter dated July 10, 2014

MBA WWTP Capacity	2,200,000 GPD
2013 ADF	1,228,000 GPD
Flow available for Londerry Township	408,000 GPD
MBA Tapping Fees	\$1,175.00 Per EDU
MBA Sewer User Rates	\$4.32 per 1000 gallons

Initial Flow to MBA WWTP

MBAWWTP Upgrade Capacity Required, GPD	0 Sufficient capacity available
MBA WWTP Upgrade Costs	\$0.00
MBA Nutrient Credits Needed	\$0.00 Refer to Analysis Below
MBA Tapping Fees	\$277,300.00
MBA Sewer User Rates - Annual	\$102,271.25

Build-out Flow to MBA WWTP

MBA WWTP Upgrade Capacity Required, GPD	116,860
MBA WWTP Upgrade Costs, Hydraulic Only	\$730,375.00 Includes 25% Project Costs
MBA WWTP Upgrade Costs, NRT	\$1,168,600.00 Includes 25% Project Costs
MBA Nutrient Credits Needed	\$0.00 Refer to Analysis Below
MBA Tapping Fees	\$2,310,050.00
MBA Sewer User Rates - Annual	\$827,599.25

Nutrient Analysis

MBA WWTP Nutrient Cap Loads:	40,182 lbs TN/year
	5,358 lbs TP/year
Current MBA WWTP Performance - Effluent:	5 mg/L TN
	0.5 mg/L TP
Assumed MBA Nutrient Discharge with Initial Flows:	19,678 lbs TN/year
	1,968 lbs TP/year
Estimated Exceedance of CAP Load with Initial Flows:	-20,504 lbs TN/year
	-3,390 lbs TP/year
OLDS Retirement Offsets - Initial Flows	3350 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Initial Flows	469 lbs TN/year
	83 lbs TP/year
Nutrient Credit Purchase Required	-24,323 lbs TN/year
	-3,473 lbs TP/year

With Hydraulic Upgrade Only

Assumed MBA Nutrient Discharge with Build-out Flows:	26,679 lbs TN/year
	2,668 lbs TP/year
Estimated Exceedance of CAP Load with Build-out Flows:	-13,503 lbs TN/year
	-2,690 lbs TP/year
OLDS Retirement Offsets - Build-out Flows	3350 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Build-out Flows	469 lbs TN/year
	83 lbs TP/year
Nutrient Credit Purchase Required	-17,321 lbs TN/year
	-2,773 lbs TP/year

With BNR Upgrade

Assumed MBA WWTP Performance - Effluent:	3 mg/L TN
	0.3 mg/L TP
Assumed MBA Nutrient Discharge with Build-out Flows:	16,008 lbs TN/year
	1,601 lbs TP/year
Estimated Exceedance of CAP Load with Build-out Flows:	-24,174 lbs TN/year
	-3,757 lbs TP/year
OLDS Retirement Offsets - Build-out Flows	3350 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Build-out Flows	469 lbs TN/year
	83 lbs TP/year
Nutrient Credit Purchase Required	-27,993 lbs TN/year
	-3,840 lbs TP/year

To Decentralized WWTPs			
Initial EDUs	Initial Flow - GPD	Build-out EDUs	Build-out Flow - GPD
262	60,970	334	79,690

New DeWWTP Initial Capacity (Combined)	60,970 GPD
Initial Flow to DeWWTP (Combined)	60,970 GPD
Flow capacity available for Londerry Township	0 GPD
Capacity Fees (assumed)	\$0.00 Per each Single-family house
Sewer User Rates (assumed)	\$5.00 per 1,000 gallons

Initial Flow to WWTP

Nutrient Credits Needed	\$490.35 Refer to Analysis Below
Capacity Fees	\$0.00
Sewer User Rates - Annual	\$111,270.25

Build-out Flow to SW WWTP

WWTP Upgrade Capacity Required, GPD	0
WWTP Upgrade Costs, Hydraulic Only	\$0.00 Includes 25% Project Costs
WWTP Upgrade Costs, NRT	\$0.00 Includes 25% Project Costs

Nutrient Credits Needed	\$689.80 Refer to Analysis Below
Capacity Fees	\$0.00
Sewer User Rates - Annual	\$145,434.25

Nutrient Analysis

WWTP Nutrient Cap Loads:	0 lbs TN/year
	0 lbs TP/year
Assumed WWTP Performance - Effluent:	10 mg/L TN
<i>Ref: Dutchland</i>	1 mg/L TP
Assumed Nutrient Discharge with Initial Flows:	1,856 lbs TN/year
	186 lbs TP/year
Estimated Exceedance of CAP Load with Initial Flows:	1,856 lbs TN/year
	186 lbs TP/year
OLDS Retirement Offsets - Initial Flows	2975 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Initial Flows	634 lbs TN/year
	46 lbs TP/year
Nutrient Credit Purchase Required	-1,753 lbs TN/year
	140 lbs TP/year

With Build-out

Assumed DTMA Nutrient Discharge with Build-out Flows:	2,426 lbs TN/year
	243 lbs TP/year
Estimated Exceedance of CAP Load with Build-out Flows:	2,426 lbs TN/year
	243 lbs TP/year
OLDS Retirement Offsets - Build-out Flows	4775 lbs TN/year
	0 lbs TP/year
Package WWTP Retirement Offsets - Build-out Flows	634 lbs TN/year
	46 lbs TP/year
Nutrient Credit Purchase Required	-2,983 lbs TN/year
	197 lbs TP/year

SUMMARY OF WASTEWATER TREATMENT ALTERNATIVES CONSIDERING BNR UPGRADES									
INITIAL FLOW PROJECTIONS									
Wastewater Treatment Alternative	New WWTP Construction or Upgrade Project Costs	WWTP Capacity/Tapping Fees	Nutrient Credit Purchase Annual Costs from New Londonderry Connections	WWTP Annual User Fees	Estimated Total Annual O&M Cost (Nutrient Credit Purchase + User Fees)	Present Worth of Annual O&M Costs	Total Present Worth	Total EDUs	Present Worth per EDU
Scenario 1									
8A - All Flow to DTMA WWTP	\$0	\$1,343,100	\$79,932	\$411,885	\$491,817	\$6,989,901	\$8,333,001	814	\$10,237
Scenario 2									
8B - All Flow to MBA WWTP	\$0	\$956,450	\$0	\$335,552	\$335,552	\$4,768,998	\$5,725,448	814	\$7,034
Scenario 3									
8C - Split Flow DTMA WWTP Component	\$0	\$953,700	\$92,407	\$292,469	\$384,876	\$5,470,006	\$6,423,706	578	\$11,114
8C - Split Flow MBA WWTP Component	\$0	\$277,300	\$0	\$102,271	\$102,271	\$1,453,520	\$1,730,820	236	\$7,334
8C - Split Flow Total	\$0	\$1,231,000	\$92,407	\$394,740	\$487,147	\$6,923,526	\$8,154,526	814	\$10,018
Scenario 4									
8D - New Regionalized WWTP	\$5,000,000	\$0	\$1,299	\$419,440	\$420,739	\$5,979,706	\$10,979,706	814	\$13,489
Scenario 5									
8E - Flow to Decentralized WWTP Component	\$2,840,000	\$0	\$490	\$111,270	\$111,761	\$1,588,387	\$4,428,387	262	\$16,902
8E - Flow to MBA WWTP Component	\$0	\$277,300	\$0	\$102,271	\$102,271	\$1,453,520	\$1,730,820	236	\$7,334
8E - Total	\$2,840,000	\$277,300	\$490	\$213,541	\$214,032	\$3,041,907	\$6,159,207	498	\$12,368

SUMMARY OF WASTEWATER TREATMENT ALTERNATIVES CONSIDERING BNR UPGRADES									
ULTIMATE BUILD-OUT FLOW PROJECTIONS									
Wastewater Treatment Alternative	New WWTP Construction or Upgrade Project Costs	WWTP Capacity/Tapping Fees	Nutrient Credit Purchase Annual Costs from New Londonderry Connections	WWTP Annual User Fees	Estimated Total Annual O&M Cost (Nutrient Credit Purchase + User Fees)	Present Worth of Annual O&M Costs	Total Present Worth	Total EDUs	Present Worth per EDU
Scenario 1									
8A - All Flow to DTMA WWTP	\$7,536,500	\$6,108,300	\$0	\$1,873,218	\$1,873,218	\$26,622,929	\$40,267,729	3,702	\$10,877
Scenario 2									
8B - All Flow to MBA WWTP	\$5,856,500	\$4,349,850	\$0	\$1,450,729	\$1,450,729	\$20,618,346	\$30,824,696	3,702	\$8,326
Scenario 3									
8C - Split Flow DTMA WWTP Component	\$2,287,900	\$2,864,400	\$0	\$878,419	\$878,419	\$12,484,442	\$17,636,742	1,736	\$10,159
8C - Split Flow MBA WWTP Component	\$1,168,600	\$2,310,050	\$0	\$827,599	\$827,599	\$11,762,174	\$15,240,824	1,966	\$7,752
8C - Split Flow Total	\$3,456,500	\$5,174,450	\$0	\$1,706,018	\$1,706,018	\$24,246,616	\$32,877,566	3,702	\$8,881
Scenario 4									
8D - New Regionalized WWTP	\$12,650,000	\$0	\$3,502	\$1,813,411	\$1,816,913	\$25,822,706	\$38,472,706	3,702	\$10,392
Scenario 5									
8E - Flow to Decentralized WWTP Component	\$3,800,000	\$0	\$690	\$145,434	\$146,124	\$2,076,774	\$5,876,774	334	\$17,595
8E - Flow to MBA WWTP Component	\$1,168,600	\$2,310,050	\$0	\$827,599	\$827,599	\$11,762,174	\$15,240,824	1,966	\$7,752
8E - Total	\$4,968,600	\$2,310,050	\$690	\$973,033	\$973,723	\$13,838,948	\$21,117,598	2,300	\$9,182

SUMMARY OF WASTEWATER TREATMENT ALTERNATIVES CONSIDERING HYDRAULIC CAPACITY UPGRADES ONLY AND NUTRIENT CREDIT PURCHASE

INITIAL FLOW PROJECTIONS

Wastewater Treatment Alternative	New WWTP Construction or Upgrade Project Costs	WWTP Capacity/Tapping Fees	Nutrient Credit Purchase Annual Costs from New Londonderry Connections	WWTP Annual User Fees	Estimated Total Annual O&M Cost (Nutrient Credit Purchase + User Fees)	Present Worth of Annual O&M Costs	Total Present Worth	Total EDUs	Estimated Present Worth per EDU
Scenario 1									
8A - All Flow to DTMA WWTP	\$0	\$1,343,100	\$79,932	\$411,885	\$491,817	\$6,989,901	\$8,333,001	814	\$10,237
Scenario 2									
8B - All Flow to MBA WWTP	\$0	\$956,450	\$0	\$335,552	\$335,552	\$4,768,998	\$5,725,448	814	\$7,034
Scenario 3									
8C - Split Flow DTMA WWTP Component	\$0	\$953,700	\$92,407	\$292,469	\$384,876	\$5,470,006	\$6,423,706	578	\$11,114
8C - Split Flow MBA WWTP Component	\$0	\$277,300	\$0	\$102,271	\$102,271	\$1,453,520	\$1,730,820	236	\$7,334
8C - Total	\$0	\$1,231,000	\$92,407	\$394,740	\$487,147	\$6,923,526	\$8,154,526	814	\$10,018
Scenario 4									
8D - New Regionalized WWTP	\$5,000,000	\$0	\$1,299	\$419,440	\$420,739	\$5,979,706	\$10,979,706	814	\$13,489
Scenario 5									
8E - Flow to Decentralized WWTP Component	\$2,840,000	\$0	\$490	\$111,270	\$111,761	\$1,588,387	\$4,428,387	262	\$16,902
8E - Flow to MBA WWTP Component	\$0	\$277,300	\$0	\$102,271	\$102,271	\$1,453,520	\$1,730,820	236	\$7,334
8E - Total	\$2,840,000	\$277,300	\$490	\$213,541	\$214,032	\$3,041,907	\$6,159,207	498	\$12,368

SUMMARY OF WASTEWATER TREATMENT ALTERNATIVES CONSIDERING HYDRAULIC CAPACITY UPGRADES ONLY AND NUTRIENT CREDIT PURCHASE

ULTIMATE BUILD-OUT FLOW PROJECTIONS

Wastewater Treatment Alternative	New WWTP Construction or Upgrade Project Costs	WWTP Capacity/Tapping Fees	Nutrient Credit Purchase Annual Costs from New Londonderry Connections	WWTP Annual User Fees	Estimated Total Annual O&M Cost (Nutrient Credit Purchase + User Fees)	Present Worth of Annual O&M Costs	Total Present Worth	Total EDUs	Present Worth per EDU
Scenario 1									
8A - All Flow to DTMA WWTP	\$4,710,313	\$6,108,300	\$289,289	\$1,873,218	\$2,162,507	\$30,734,418	\$41,553,031	3,702	\$11,224
Scenario 2									
8B - All Flow to MBA WWTP	\$3,660,313	\$4,349,850	\$0	\$1,450,729	\$1,450,729	\$20,618,346	\$28,628,508	3,702	\$7,733
Scenario 3									
8C - Split Flow DTMA WWTP Component	\$1,429,938	\$2,864,400	\$171,887	\$878,419	\$1,050,306	\$14,927,372	\$19,221,710	1,736	\$11,072
8C - Split Flow MBA WWTP Component	\$730,375	\$2,310,050	\$0	\$827,599	\$827,599	\$11,762,174	\$14,802,599	1,966	\$7,529
8C - Split Flow Total	\$2,160,313	\$5,174,450	\$171,887	\$1,706,018	\$1,877,905	\$26,689,547	\$34,024,309	3,702	\$9,191
Scenario 4									
8D - New Regionalized WWTP	\$12,650,000	\$0	\$3,502	\$1,813,411	\$1,816,913	\$25,822,706	\$38,472,706	3,702	\$10,392
Scenario 5									
8E - Flow to Decentralized WWTP Component	\$3,800,000	\$0	\$690	\$145,434	\$146,124	\$2,076,774	\$5,876,774	334	\$17,595
8E - Flow to MBA WWTP Component	\$730,375	\$2,310,050	\$0	\$827,599	\$827,599	\$11,762,174	\$14,802,599	1,966	\$7,529
8E - Total	\$4,530,375	\$2,310,050	\$690	\$973,033	\$973,723	\$13,838,948	\$20,679,373	2,300	\$8,991