Cape Cod Commission - Nitrogen Loading

User Inputs		Existing	Proposed	Instructions
Wastewater System				
	Title 5 Design Flow (gpd)	54,245	47,650	Enter Value
	Actual Flow (residential) (gpd)	25,520	20,900	Enter Value
	System Type	Title 5	Title 5	Choose from dropdown
	Effluent N (mg/L)	10	10	Enter value - See Wastewater System Instructions below
Project and Site Coverage				
	Town	Barnstable	Barnstable	Choose from dropdown
	Project Site Area (ac)	6.738	6.738	Enter Value
	Wetland Area (sqft)			Enter Value
	Paving (sqft)	226,494	227,946	Enter Value
	% of paving with LID treatment	0	8	Enter Percentage (whole # 0-100)
	Roof (sqft)	63,244	62,798	Enter Value
	% of roof directed to LID treatment	0	0	Enter Percentage (whole # 0-100)
	Managed Turf (sqft)	3,820	2,784	Enter Value

Wastewater System Instructions

Wastewater System Type	Effluent N value (mg/L) [Enter in Cell E9 / F9]
Title 5	35
I/A Septic	Enter MassDEP permit approval value in E9 / F9
Groundwater Discharge Permit	Enter MassDEP permit approval value in E9 / F9
Sewer System	0

Outputs			Existing	Proposed	Net Change	
Wastewater	Average Flow (gpd)		39,883	34,275	-5,608	
Site Coverage	Upland Area (sqft)		293,507	293,507	0	
	Natural Area (includes managed turf) (sqft)		3,769	2,763	-1,006	
Project Nitrogen Load (Objective WR1)	Wastewater nitrogen (kg/yr)		551.05	473.57	-77.48	Eqn (1)
	Stormwater nitrogen (kg/yr)		36.55	36.07	-0.47	Eqn (5)
		Pavement nitrogen (kg/yr)	32.07	32.27	0.21	Eqn (2)
		LID Credit	0.00	0.65	0.65	Eqn (4)
		Rooftop nitrogen (kg/yr)	4.48	4.45	-0.03	Eqn (3)
		LID Credit	0.00	0.00	0.00	Eqn (4)
	Fertilizer nitrogen (kg/yr)		1.30	0.95	-0.35	Eqn (6)
	Total Project Nitrogen (kg/yr)		588.89	510.59	-78.30	
Project Recharge	Recharge from Wastewater (L / yr)		55,104,639	47,356,899	-7,747,741	Eqn (7)
	Recharge from Natural (L / yr)		160,101	117,371	-42,730	Eqn (9)
	Recharge from Impervious (L / yr)		27,348,177	27,443,132	94,956	Eqn (8)
	Total Recharge (L / yr)		82,612,917	74,917,402	-7,695,515	
Project Nitrogen Loading	**Sitewide Nitrogen Loading (mg/L or ppm)**		**7.13**	**6.82**	**-0.31**	
Project Nitrogen Mass (Objective WR3)	Wastewater nitrogen (kg/yr)		1446.50	1243.12	-203.38	Eqn (1)
	Stormwater nitrogen (kg/yr)		36.55	36.07	-0.47	Eqn (5)
	Fertilizer nitrogen (kg/yr)		1.30	0.95	-0.35	Eqn (6)
	Total kg N to coastal waters		**1484.34**	**1280.14**	**-204.20**	
	Monetary offset amount			**$**	**-**	

Note: For Objective WR3, Title 5 systems are considered to have an effective effluent N of 26.25 mg/L. For other types of systems effluent N is the same for WR1 and WR3