

## SUMMARY OF NITROGEN AND PHOSPHORUS LOADS – Scenario 2

SKI Proposal: Provide ENR treatment to 1,518 existing homes with septics and 560 new homes

<b>EXISTING CONDITIONS – Septic Systems</b>		<b>NITROGEN LOADS - LBS/YEAR</b>		<b>PHOSPHORUS LOADS - LBS/YEAR</b>	
Septic Systems	940 homes within the Critical Area	17,446		0	
	113 homes within 1,000 ft of a perennial stream	1,311		0	
	465 homes beyond the Critical Area	3,236		0	
	vacant lots	0	Subtotal: 21,993	0	
Non-point	1,518 homes on 878 acres	6,895		337	
	vacant lots on 327 acres	1,528	Subtotal: 8,423	60	Subtotal: 397
		About 30,400 lbs/yr	TOTAL	About 400 lbs/yr	TOTAL

<b>FUTURE CONDITIONS – Connect to WWTP</b>					
ENR	1,518 existing homes on ENR and 560 new homes on ENR	4,987		374	
Non-point	1,518 existing homes on 878 acres and 560 new homes on 327 acres (assume ESD)	8,158		401	
		About 13,100 lbs/yr	TOTAL	About 780 lbs/yr	TOTAL

**Scenario 2**

Prior to development, the vacant land was assumed to be 50% forest and 50% pervious (grass).

After development, the land was assumed to be 20% forest, 50% pervious (grass), and 30% impervious.

**Reduction in Nitrogen Loads**

Existing	30,400
Future	<u>- 13,100</u>
Reduction	17,300 lbs/yr

**Increase in Phosphorus Loads**

Future	780
Existing	<u>- 400</u>
Increase	380 lbs/yr

**SKI – Summary of Nitrogen and Phosphorus Loads for Scenario 2****Analysis Details and Assumptions**

1. The analysis was limited to the service areas for the proposed SKI project.
2. It was determined that there were 1,518 existing homes in the service area.
3. The analysis was prepared for the probable number of vacant lots (560 lots) that would be developed rather than the maximum number of vacant lots (658 lots) that could be developed.
4. The analysis was limited to the parcels (1,205 acres) in the service area and did not include the roads.
5. The non-point loading rates that were used were from the Bay Program and were for Queen Anne's County (State-wide rates were not used).
6. Scenario 2  
Prior to development, the vacant land was assumed to be 50% forest and 50% pervious (grass).  
After development, the land was assumed to be 20% forest, 50% pervious (grass), and 30% impervious.
7. It was assumed that there was no stormwater management prior to development of the vacant lots.
8. It was assumed that Environmental Site Design was applied to control stormwater after development of the vacant lots (50% reduction in nitrogen load and 60% reduction in phosphorus load).
9. If the footprint of a residence touched the bounds of the Critical Area, the septic system for that parcel was assumed to be in the Critical Area and the corresponding TN loading rate (18.56 lbs / yr / HH) was used for that parcel (940 parcels).
10. If the footprint of a residence was within 1,000 feet of a perennial stream, the septic system for that parcel was assumed to be within 1,000 feet of a perennial stream and the corresponding TN loading rate (11.6 lbs / yr / HH) was used for that parcel (113 parcels).
11. If the footprint of a residence was beyond the Critical area and not within 1,000 feet of a perennial stream, the corresponding TN loading rate (6.96 lbs / yr / HH) for the septic system was used for that parcel (465 parcels).
12. The flow to the WWTP was assumed to be 195 gallons per household.
13. The ENR loading rates were assumed to be 2.4 lbs TN and 0.18 lbs TP per year per household.