The following chart demonstrates the difference in the data with the two curves. The "anchor rates" were the rates of percent Total Phosphorus removal based on the runoff treated in inches as was derived from the expert panel literature review. The third column demonstrates what the percent TP removal would be for the corresponding inches of runoff treated when using the logarithmic trendline (which was old method). Finally the delta column demonstrates the difference between the %TP removal values. Highlighted in red are the TP values that would have been underestimated and highlighted in green are the values that would have been overestimated.

	"Anchor Rates"		Log Trendline (Old) y = 0.1617ln(x) + 0.5175	
	Runoff Treated (inches)	Total Phosphorus Removal (%)	Total Phosphorus Removal (%)	Delta
ST Practices	0.05	6%	3%	-2%
	0.1	11%	15%	3%
	0.25	26%	29%	4%
	0.5	41%	41%	0%
	0.75	50%	47%	-3%
	1	55%	52%	-3%
	1.25	58%	55%	-3%
	1.5	60%	58%	-1%
	2	61%	63%	1%
	2.5	62%	67%	5%
	3	62.00%	70%	8%
	3.5	63.00%	72%	9%
	"Anchor Rates"		Log Trendline (old) y = 0.2058ln(x) + 0.6587	
	Runoff Treated (inches)	Total Phosphorus Removal (%)	Total Phosphorus Removal (%)	Delta
RR Practices	0.05	7%	4%	-3%
	0.1	14%	18%	4%
	0.25	33%	37%	5%
	0.5	52%	52%	-1%
	0.75	63%	60%	-3%
	1	70%	66%	-4%
	1.25	74%	70%	-3%
	1.5	76%	74%	-2%
	2	78%	80%	2%
	2.5	79%	85%	6%
	3	85.00%	88%	3%
	3.5	85.00%	92%	7%

As you can see from the following chart, the polynomial trendline is a better fit to the anchor rates that were derived from the expert panel literature review. The logarithmic trendline (old curve) doesn't fit the data as well. I have included the R^2 values for each trendline to further demonstrate this. The data didn't change, only the trendlines did which presumably provides more accuracy for the extrapolated values (see page 2).

Total Phosphorus Removal for RR and ST Stormwater Retrofit Practices