

APPENDIX C: ALLOCATIONS

Load Allocation – Calculations

Important Figures Used in Calculations

Numeric Target = 200 mg/L

Conversion factor from mg/L to tons = 0.0013597

Future growth = 3% (based on calculations for future growth in the New River Sedimentation/ Siltation TMDL)

Source Analysis Figures Used in Calculations

Drain Name	Avg Flow (ac-feet/year)	Avg TSS @ Outlet (mg/L) aka concentration	Avg Sediment Load (tons/year) aka load
Niland 2	1264.0	410.0	704.7
P	2688.1	235.0	858.9
Pumice	16445.9	610.0	13640.4
All Drains	20398.0	418.3	11602.4

Calculations

% of Total Flow

Niland 2 $\frac{1264.0}{20398.0} = 0.0620 = 6.2\%$

P $\frac{2688.1}{20398.0} = 0.1318 = 13.2\%$

Pumice $\frac{16445.9}{20398.0} = 0.8063 = 80.6\%$

Total Concentration

Total Concentration = Numeric Target - Natural Sources - Margin of Safety
 = 200 mg/L - 10 mg/L - 10 mg/L
 = 180 mg/L

Total Load (Without Future Growth)

For all drains combined:

Load = (180 mg/L) (20398.0 acre-feet) (0.0013597) = 4992.3 tons

For natural sources:

Load = (10 mg/L) (20398.0 acre-feet) (0.0013597) = 277.4 tons

For Margin of Safety:

Load = (10 mg/L) (20398.0 acre-feet) (0.0013597) = 277.4 tons

Therefore, total load is 4992.3 + 277.4 + 277.4 = 5547.0 tons

Load Allocation – Calculations

Load Allocations for Individual Drains

Niland 2	4992.3 x 0.0620	=	309.4 tons
P	4992.3 x 0.1318	=	657.9 tons
Pumice	4992.3 x 0.8063	=	4025.1 tons

Load Allocation for Future Growth

Future Growth	4992.3 x 0.03	=	149.8 tons
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Load Allocations for Individual Drains, Adjusted to Include Future Growth

Niland 2	4992.3 x 0.0620	=	309.4 tons without future growth
	149.8 x 0.0620	=	9.3 tons for future growth
	309.4 - 9.3	=	300.1 tons with future growth
P	4992.3 x 0.1318	=	658.0 tons without future growth
	149.8 x 0.1318	=	19.7 tons for future growth
	658.0 - 19.7	=	638.2 tons with future growth
Pumice	4992.3 x 0.8063	=	4025.3 tons without future growth
	149.8 x 0.8063	=	120.8 tons for future growth
	4025.3 - 120.8	=	3904.3 tons with future growth

% of Total Load Allocation, Adjusted to Include Future Growth

Niland 2	300.1 tons / 4992.3 tons	=	.0601	=	6.0%
P	638.2 tons / 4992.3 tons	=	.1278	=	12.8%
Pumice	3904.3 tons / 4992.3 tons	=	.7821	=	78.2%
Future growth	149.8 tons / 4992.3 tons	=	.0300	=	3.0%
TOTAL					100.0%

Comparison of Current to Target Sediment Load

Drain Name	Current Avg Sed Load (tons/year)	Target Avg Sed Load (tons/year)	% Reduction
Niland 2	704.7	300.1	57%
P	858.9	638.2	26%
Pumice	13,640.4	3,904.3	71%
All Drains	11,602.4	4,842.6	58%

Load Allocation – Calculations

Summary

Table C-1: Load Allocations Summary

Sediment Source	# Of Drains Included in Segment	Sediment Load Allocation (tons/year)
Niland 2 drain	1	300.1
P drain	1	638.2
Pumice drain (including 5 Vail drains that drain into it)	6	3,904.3
Future Growth	None	149.8
Total Load Allocation for drains (corresponds to TSS of 180 mg/L)	8	4,992.4
Natural Sources	Not applicable	277.4
Margin of Safety	Not applicable	277.4
Total Load Allocation for other sources (corresponds to TSS of 20 mg/L)	Not applicable	554.8
TOTAL ASSIMILATIVE CAPACITY (Total Allocation for all sources; corresponds to TSS of 200 mg/L)	8	5,547.2