Flows & Loadings Full Matrix

Detailed information from the Flows & Loadings Workgroup may be found in Appendix A.

	Projected Flow Data by Discharger—April through October										
Year	Airway Heights Average Daily Flow (MGD)	City of Spokane Average Daily Flow (MGD)	Spokane County Average Daily Flow (MGD)	Inland Empire Paper Average Daily Flow (MGD)	Kaiser Aluminum Groundwater Remediation Average Daily Flow (MGD)	Kaiser Aluminum Process Water Average Daily Flow (MGD)	LLSD Average Daily Flow (MGD)	Post Falls Average Daily Flow (MGD)	HARSB Average Daily Flow (MGD)	Coeur D'Alene Average Daily Flow (MGD)	TOTAL PROJECTED FLOWS (MGD)
2004	0.31	29	7.20	5.04	20.00	0.14	0.70	2.13	1.10	3.32	69
2008	0.54	33	8.40	3.50	20.00	0.14	1.15	3.20	1.45	3.70	75
2013		40	10.40	3.50	20.00	0.14	1.35	3.70	1.89	4.70	85
2018		37	14.56	3.50	20.00	0.14	1.42	4.30	2.33	5.30	89
2023		37	15.77	3.50	20.00	0.14	1.47	5.00	2.77	6.00	92
2028		38	17.34	3.50	20.00	0.14	1.49	5.70	3.20	7.00	96

Assumptions: Airway Heights new treatment plant on line in year 2010
Spokane County Regional treatment plant on line at end of year 2012 w/ 8 MGD capacity; after which County flows exceeding 8 MGD will be treated at the City of Spokane Plant.
The projected flows do not account for future flow conservation measures, nor for potential reduction in per capita flows from CSO reductions

Technology Full Matrix

Projected Flows & Loadings may be found in Appendix A. Detailed information from the Technology Workgroup may be found in Appendix B.

	Description of Current P Contributions				Description of Proposed Reductions					
Point Source Flows	Location of P Entry	Location of P Removal	Seasonal Considerations	Current P Contribution (Lbs./day)	Short Term (2008) P Removed (Lbs./day)		Mid Term (2013) P Removed (Lbs./day)		Long Term (2028) P Removed (Lbs./day)	
					50 µg/L	10 µg/L	50 µg/L	10 µg/L	50 µg/L	10 µg/L
Coeur d'Alene	RM 111.0	RM 111.0	Year-Round	6.9	5.36	6.6	4.94	6.5	3.98	6.3
HARSB (†)	RM 108.7	RM 108.7	Year-Round	3.5	2.90	3.4	2.71	3.3	0.58	3.2
Post Falls	RM 100.5	RM 100.5	Year-Round	4.1	2.77	3.8	2.56	3.8	1.73	3.6
Liberty Lake	RM 92.7	RM 92.7	Year-Round	9.1	8.62	9.0	8.62	9.0	8.48	9.0
Airway Heights			Year-Round	0	Out of River	Out of River	Out of River	Out of River	Out of River	Out of River
Aluminum	RM 86.0	RM 86.0	Year-Round	0.1	0.04	0.1	0.04	0.1	0.04	0.1
Inland Empire	RM 82.6	RM 82.6	Year-Round	9.8	8.34	9.5	8.34	9.2	8.34	8.9
City of Spokane	RM 67.4	RM 67.4	Year-Round	120	106.23	117.2	103.51	116.7	104.30	116.9
Spokane County			Year-Round	31	27.50	30.3	26.67	30.1	23.78	29.6
		Contribution Subtotal (Lbs./day)		**184.5**						
			Reduction Subtotals (Lbs./day)		161.8	180.0	157.4	178.79	151.2	177.58

(†) HARSB is designated as "seasonal land application" in the 2004 draft TMDL. It is now assumed that HARSB will discharge to the Spokane River during the months of April, May, and October. HARSB's current P contribution is calculated from Flows & Loadings Workgroup data (1.1MGD flow @ 0.38 mg/L effluent concentration).

Technology Full Matrix

Projected Flows & Loadings may be found in Appendix A. Detailed information from the Technology Workgroup may be found in Appendix B.

	Description of Current P Contributions				Description of Proposed Reductions					
Point Source Flows	Location of P Entry	Location of P Removal	Seasonal Considerations	Current P Contribution (Lbs./day)	Short Term (2008) P Removed (Lbs./day)		Mid Term (2013) P Removed (Lbs./day)		Long Term (2028) P Removed (Lbs./day)	
					50 µg/L	10 µg/L	50 µg/L	10 µg/L	50 µg/L	10 µg/L
Coeur d'Alene	RM 111.0	RM 111.0	Year-Round	6.9	5.36	6.6	4.94	6.5	3.98	6.3
HARSB (†)	RM 108.7	RM 108.7	Year-Round	3.5	2.90	3.4	2.71	3.3	0.58	3.2
Post Falls	RM 100.5	RM 100.5	Year-Round	4.1	2.77	3.8	2.56	3.8	1.73	3.6
Liberty Lake	RM 92.7	RM 92.7	Year-Round	9.1	8.62	9.0	8.62	9.0	8.48	9.0
Airway Heights			Year-Round	0			Out of River	Out of River	Out of River	Out of River
Aluminum	RM 86.0	RM 86.0	Year-Round	0.1	0.04	0.1	0.04	0.1	0.04	0.1
Inland Empire	RM 82.6	RM 82.6	Year-Round	9.8	8.34	9.5	8.34	9.2	8.34	8.9
City of Spokane	RM 67.4	RM 67.4	Year-Round	120	106.23	117.2	103.51	116.7	104.30	116.9
Spokane County			Year-Round	31	27.50	30.3	26.67	30.1	23.78	29.6
		Contribution Subtotal (Lbs./day)		**184.5**						
			Dishcarge Subtotals (Lbs./day)		22.74	4.55	27.11	5.71	33.26	6.92

(†) HARSB is designated as "seasonal land application" in the 2004 draft TMDL. It is now assumed that HARSB will discharge to the Spokane River during the months of April, May, and October. HARSB's current P contribution is calculated from Flows & Loadings Workgroup data (1.1MGD flow @ 0.38 mg/L effluent concentration).

Re-Use Full Matrix

Detailed information from the Re-Use & Conservation Workgroup may be found in Appendix C

Re-Use Opportunities	Description of Current P Contributions				Description of Proposed Reductions	Notes
	Location of P Entry	Location of P Removal	Seasonal Considerations	Flow (MGD) (†)	P Removed (Lbs./day) 50 µg/L–10 µg/L	
City of Spokane	RM 67.4	RM 67.4	April-October	1.3	0.5–0.1	**Total Re-Use Regional Re-Use Opportunities = 32.3 MGD (mean)** (††) Short Term: Treatment Plant Landscape Mid-Term: Treatment Plant Pilot Long-Term: Downriver Golf Course, Fairmont Cemetary The City of Spokane is not prepared to land-apply treated wastewater to parks or schools at the moment, and these opportunities have not been counted in their urban irrigation needs/re-use opportunities profile.
Liberty Lake Sewer & Water	RM 92.7	RM 92.7	April-October	3.0	1.3–0.3	**Total Re-Use Opportunities within 4 miles = 3 MGD** Meadow Wood Golf Course, Liberty Lake Golf Course, Trailhead Golf Course, Interstate 90 Irrigation, Liberty Lake WWTP
Spokane County			April-October	TBD	TBD	**Total Re-Use Opportunities within 15 miles = approx. 71 MGD (mean)** (††,†††) Within 1 mile: Spokane Treatment Plant Pilot, Spokane Interstate Fairgrounds, schools Within 5 miles: parks, schools, industries, and golf courses Within 10 miles: Plantes Ferry Park, parks, schools, golf courses, cemetaries 17 miles: Saltese Flats (flow not yet calculated)
Inland Empire Paper Company	RM 82.6	RM 82.6	Year-Round	1.0	0.4–0.1	Reclaimation of water from the old newsprint (ONP) recycling process and reclamation of clarified water from the primary clarifier.
		Reduction Subtotals (Lbs./day)			2.2–0.5	

(†) "Flow" refers to the projected total flow of individual opportunities submitted by Workgroup members in their memoranda.
(††) Totals may reflect some overlap in identified re-use opportunities within the concentric rings established around the City of Spokane and proposed Spokane County treatment plants.
(†††) Summary totals of mean re-use opportunities for Spokane County only provided total flow for opportunities within 10 miles and within 20 miles of the proposed treatment plant. Total mean re-use opportunities within 15 miles of the proposed treatment plant were calculated from the Flows & Loadings combined spreadsheet.

Conservation Full Matrix

Detailed information from the Re-Use & Conservation Workgroup may be found in Appendix C.

	Description of Current P Contributions				Description of Proposed Reductions					
					Short Term (2008) P Removed (Lbs./day)		Mid Term (2013) P Removed (Lbs./day)		Long Term (2028) P Removed (Lbs./day)	
Conservation Opportunities	Location of P Entry	Location of P Removal	Seasonal Considerations	Flow (MGD)	50 µg/L	10 µg/L	50 µg/L	10 µg/L	50 µg/L	10 µg/L
City of Spokane Indoor Goal 5%-20%	RM 67.4	RM 67.4	April-October	Indoor represents approx. 50% of flows to WWTP	0.34 (5%) / 1.37 (20%)	0.07 (5%) / 0.28 (20%)	0.41 (5%) / 1.65 (20%)	0.83 (5%) / 0.33 (20%)	0.39 (5%) / 1.57 (20%)	0.08 (5%) / 0.31 (20%)
Sewer & Water District Indoor Goal 5%	RM 92.7	RM 92.7	April-October	Indoor represents approx. 76% of flows to WWTP	0.02	0.00	0.02	0.00	0.02	0.00
Spokane County Conservation Program			April-October	TBD	TBD	TBD	TBD	TBD	TBD	TBD
			Reduction Subtotals (Lbs./day)		0.36–1.39	0.07–0.28	0.43–1.67	0.83–0.33	0.41–1.59	0.08–0.31

Non-Point Source Full Matrix

Detailed information from the non-Point Source Workgroup may be found in Appendix D.

	Description of Current P Contributions				Description of Proposed Reductions
Potentially Controllable Non-Point Sources	Location of P Entry	Location of P Removal	Seasonal Considerations	Current P Contribution (Lbs./day)	P Removed (Lbs./day)
Hangman Creek (†)	various	various	April-October	39.0	22-36
Stormwater (††)	various	various	April-October	16.0	0-6
Lake Coeur d'Alene	various	various	April-October	22.0	0-4
Lake Spokane	various	various	April-October	16.0	0-2
Little Spokane River	various	various	April-October	82.0	41-66
Valley Aquifer	various	various	April-October	37.0	4-7
		Contribution Subtotal (Lbs./day)		**207**	
			Reduction Subtotals (Lbs./day)		65-117

(†) The Hangman (Latah) Creek suggested current load is based on an average flow from 1948-2001 rather than the TMDL year of 2001because the low flow year of 2001 represents a "best case scenario" with respect to the phosphorus load coming out of the tributatry.

(††) Stormwater includes only the City of Spokane separate stormwater system