

Table 3-7. Tier One Impaired Streams

Stream ID (AUID)	Stream Name	Tier One Selection Criteria
07040001-504	Lower Vermillion River	<ul style="list-style-type: none"> • Groundwater sensitive area • TSS impairment • Drains to large river recreation area
07040002-735	Belle Creek	<ul style="list-style-type: none"> • Groundwater sensitive area • Coldwater trout stream • TSS and <i>E. coli</i> impairments • Top 25% TN/TP yielding subwatershed • Drains to large river recreation area
07040002-526	Little Cannon River	<ul style="list-style-type: none"> • Groundwater sensitive area • Coldwater trout stream • Nitrate, TSS and <i>E. coli</i> impairments • Top 25% TN/TP yielding subwatershed • Drains to large river recreation area
07040002-567	Trout Brook	<ul style="list-style-type: none"> • Groundwater sensitive area • Coldwater trout stream • Nitrate and TSS impairments • Top 25% TN/TP yielding subwatershed
07040002-504	Prairie Creek	<ul style="list-style-type: none"> • Groundwater sensitive area • M-IBI, TSS and <i>E. coli</i> impairments • Top 25% TN/TP yielding subwatershed • Drains to large river recreation area
07040002-505	Rush Creek (trib. to Straight River near Faribault)	<ul style="list-style-type: none"> • Groundwater sensitive area • TSS and <i>E. coli</i> impairments • Top 25% TN/TP yielding subwatershed
07040002-547	Medford Creek (trib. to Straight River near Faribault)	<ul style="list-style-type: none"> • Groundwater sensitive area • F-IBI and M-IBI impairments • Top 25% TN/TP yielding subwatershed

Table 3-8. HSPF-SAM Existing TSS Loads and Load Reduction Goals for Tier One Impaired Streams in the Cannon River Comprehensive Watershed Management Plan

Impaired Stream	HSPF-SAM Existing TSS Load and Load Reduction Goals					
	Existing TSS Load [tons/yr]	12% TSS Reduction (Long-term Future Condition) Measurable Goal [tons/yr]	Estimated 5-year TSS Reduction [tons/yr]	Estimated 10-year TSS Reduction (total from Table 3-10) [tons/yr]	10-year Progress Towards 12% TSS Reduction Measurable Goal [%]	10-year TSS Reduction from Existing Load [%]
Lower Vermillion*	1,843	221	253	505	229%	27%
Belle Creek	34,700	4,164	1,072	2,145	52%	6%
Little Cannon River	32,573	3,909	1,357	2,713	69%	8%
Trout Brook	2,376	285	619	1,238	434%	52%
Prairie Creek	8,425	1,011	316	631	62%	7%
Rush Creek	1,939	233	120	240	103%	12%
Medford Creek	595	71	102	203	285%	34%

* The Lower Vermillion River HSPF-SAM was not available at the time of this planning process; therefore, existing load estimates and load reductions for the Lower Vermillion River were based on applying HSPF-SAM yields for the adjacent Trout Brook drainage area over the Lower Vermillion River drainage area. Note that the existing loads and load reduction goals are for the portion of the Lower Vermillion River drainage area located within the Cannon River Planning Area.

Table 3-9. HSPF-SAM Existing Nitrate Loads and Load Reduction Goals for Tier One Impaired Streams in the Cannon River Comprehensive Watershed Management Plan

Impaired Stream	HSPF-SAM Existing Nitrate** Load and Load Reduction Goals					
	Existing Nitrate Load [lb/yr]	20% Nitrate Reduction (Long-term Future Condition) Measurable Goal [lb/yr]	Estimated 5-year Nitrate Reduction [lb/yr]	Estimated 10-year Nitrate Reduction (from Table 3-10) [lb/yr]	10-year Progress Towards 20% Reduction Measurable Goal [%]	10-year Nitrate Reduction from Existing Load [%]
Lower Vermillion*	184,807	36,961	6,504	13,008	35%	7%
Belle Creek	805,249	161,050	29,353	58,705	36%	7%
Little Cannon River	835,565	167,113	33,030	66,061	40%	8%
Trout Brook	238,336	47,667	13,360	26,719	56%	11%
Prairie Creek	687,773	137,555	20,249	40,497	29%	6%
Rush Creek	243,579	48,716	6,560	13,120	27%	5%
Medford Creek	81,227	16,245	5,978	11,956	74%	15%

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**The form of nitrogen that is a concern for drinking water and aquatic life is nitrate, which is one fraction of the total nitrogen in a system. However, existing modeling tools currently are only capable of estimating existing total nitrogen loads and load reductions to resources. Therefore, existing loads and load reduction goals in the plan are reported for total nitrogen, as a proxy for nitrate existing loads and load reduction goals.

Table 3-10. Tier One Pollutant Impaired Stream HSPF-SAM Estimated Annual Load Reduction by Activity

Pollutant Impaired Stream	Drainage Area [acres]	HSPF-SAM Estimated Load Reduction by Activity (see Section 3.2.1 for Agricultural Conservation Practices)										PTMAApp Prioritized Targeted Implementation Areas** (subcatchments with the highest TSS load delivery to priority resources)	
		3.1.1-C-7		3.2.1-A-1		3.2.1-A-3		3.2.1-B-2		3.2.1-B-3			
		Structural Practices (see Table 5 in Appendix D)		Cropland Conversion on Vulnerable Soils to Perennial (see Table 1 in Appendix D)		Nutrient Management BMPs (see Table 2 in Appendix D)		Cover Crops on Corn/ Soybean (see Table 3 in Appendix D)		Cover Crops on Short-season Crops (see Table 4 in Appendix D)			
		TSS	Nitrate	TSS	Nitrate	TSS	Nitrate	TSS	Nitrate	TSS	Nitrate	Area ***	Highest Load Delivered Category
		[tons /yr]	[lb /yr]	[tons /yr]	[lb /yr]	[tons /yr]	[lb /yr]	[tons /yr]	[lb /yr]	[tons/ yr]	[lb /yr]	[ac]	[tons/ac/yr]
Lower Vermillion*	14,055	203	n/a	44	3,990	--	4,639	249	4,180	10	192	**	**
Belle Creek	50,145	682	n/a	169	15,512	--	20,082	1,235	22,182	59	929	322 2,208	7.2-12.2 4.1-7.2
Little Cannon River	60,819	979	n/a	147	13,473	--	25,633	1,516	25,248	72	1,708	535 2,911	4.0-11.9 1.9-4.0
Trout Brook	18,126	307	n/a	56	5,148	--	6,350	704	11,821	171	3,401	618 2,359	5.2-10.6 3.0-5.2
Prairie Creek	51,035	175	n/a	39	7,677	--	15,117	366	16,662	51	1,041	1,387 7,580	2.4-6.4 1.5-2.4
Rush Creek	14,351	54	n/a	2	407	--	4,657	127	6,920	57	1,135	**	**
Medford Creek	14,234	48	n/a	3	566	--	4,270	114	6,354	38	765	**	**

* The Lower Vermillion River HSPF-SAM was not available at the time of this planning process; therefore, existing load estimates and load reductions (except for structural practices) for the Lower Vermillion River were based on applying HSPF-SAM yields for the adjacent Trout Brook drainage area over the Lower Vermillion River drainage area.

'--' Nutrient management BMPs are not effective at reducing TSS.

n/a = The 2017 Iowa Nutrient Reduction Strategy and the 2017 Agricultural BMP Handbook for Minnesota do not assign nitrate reductions to WASC0B structural practices (see Appendix D)

** PTMAApp was used to determine the level of TSS delivery from all the subcatchments within the targeted implementation areas to the priority resource (except Medford and Rush Creeks; see Figure 3-14 through Figure 3-17). Medford and Rush Creeks fall within the Straight River Area which is not currently included in PTMAApp; HSPF-SAM was used to develop TSS delivery maps (Figure 3-18) for these two areas until PTMAApp. Subcatchments with the highest TSS delivery will be prioritized for implementation of practices first. The total acreage of subcatchments within the highest of the 5 TSS load delivery categories (shown in Figure 3-14 through Figure 3-18) is provided in the right-hand column of Table 3-10. It should be noted that there is not a figure identifying the prioritized targeted implementation areas for the Lower Vermillion River drainage areas because neither HSPF nor PTMAApp has been completed for this area.

*** Where two values are provided, the top two highest ranked portions of the drainage area (estimated using PTMAApp) are included to demonstrate there is viable acreage to meet the goal.