Table 1. Comparison of previous (2015) and current BCWMC (2017) and MPCA MS4 (2020) triggers and water quality performance standards for linear projects

BCWMC Reviews of Linear Projects			2017-33 Metro Transit C Line BRT	2018-02 Hwy 55 Frontage Road Reconstruction	2018-04 Golden Valley 2018 PMP	2018-05 Luce Line Regional Trail Reconstruction	2018-07 Toledo-Scott Avenue Reconstruction	2018-08 Kilmer Park Street Reconstruction	2018-09 CenterPoint Energy 2018 MBLC GIV West	2018-11 CenterPoint Energy Boone Avenue N Mill	2018-15 Trunk Highway 55 (TH 55) West Improvements	2018-18 CenterPoint Energy 2018 MBLC GIV Central	2018-21 MCES Golden Valley Interceptor	**August 2017 to September 2018 totals**	^ Previously reviewed by the BCWMC at their September 2018 meeting. ^	2018-22 Plymouth Sanitary and Storm Sewer Rehab	2018-30 Wirpark Drive Infrastructure Impr.	2018-31 CSAH 9 (Rockford Road) and I-494 Interchange	2019-02 Golden Valley 2019 PMP	2019-04 CenterPoint MBLSW Winnetka Avenue	2019-05 Bandlelight Terrace Street Reconstruction	2019-10 Ridgedale Drive Improvements	2019-12 Theodore Wirth Golf Course Cart Paths	2019-28 Plymouth 2020 Street Construction	2020-01 Golden Valley 2020 PMP	2020-04 CenterPoint Energy 2020 MBLNW Winnetka	2020-07 Crystal 2020 Utility Reconstruction	2020-12 New Hope 2020 Infrastructure Improvements	2020-13 West Broadway Ave (CSAH81) Bridges Recon.	**October 2018 to October 2020 totals**	^ Previously reviewed by the BCWMC at their October 2020 meeting. ^	2020-16 Irving Avenue Sanitary Sewer Replacement	2021-03 Ridgemount Avenue Improvements	2021-04 Crystal 2021 Utility Reconstruction (Louisiana Avenue Culvert)	2021-07 Plymouth 2021 Street Rehabilitation	2021-28 Golden Valley 2022 PMP	2021-32 Crystal 2022 Utility Reconstruction	2021-35 Plymouth 2022 Street Reconstruction	2021-36 Peninsula Road Street and Utility Improvements	2022-03 Ticksburg Lane Improvements	**November 2020 to October 2022 totals**		2022-21 Highway 55 Frontage Road Pedestrian Tunnel	2022-23 Golden Valley 2023 PMP	2022-26 Crystal Utility Reconstruction	2023-02 Plymouth 2023 City Center Pavement Rehabilitation	2023-03 2023 Plymouth Reconstruction	2023-14 Hennepin Co. Fiber Optic Cable	2023-23 Hopkins Crossroads Trail Improvement	2023-25 Golden Valley 2024 PMP	2024-01 Crystal 2024 Utility Reconstruction	2024-2 Plymouth Street Rehabilitation	2024-03 Plymouth Boulevard Rehabilitation	2024-07 Golden Valley Country Club Underground Distributio	2024-09 Zane Avenue and Lindsay Street Improvements	**November 2022 to October 2024 totals**	**TOTAL**
BCWMC Project Review Data	Project Disturbance (acres)		5.50	1.50	8.37	1.92	3.40	7.70	1.80	0.90	2.66	1.77	4.42	**39.94**		0.67	3.90	19.17	11.03	2.50	1.61	14.24	7.00	20.70	7.90	4.50	4.09	14.08	7.4	**118.79**		2.96	4.4	2.3	1.2	8.08	2.94	9.8	7.11	3.55	**42.34**		4.60	6.99	2.06	9.50	2.40	0.05	2.00	7.26	4.82	0.94	20.89	0.00	5.63	**67.14**	**268.21**
	Existing Impervious (acres)		5.40	1.15	5.27	0.76	2.89	4.58	1.80	0.00	0.92	1.77	0.86	**25.40**		0.16	2.64	5.91	5.89	2.50	0.95	8.94	2.35	12.81	4.56	4.50	1.95	6.08	3.64	**62.88**		2.04	6.8	1.49	1.09	5.3	1.93	6.05	5.1	10.32	**40.12**		2.70	5.09	2.06	8.10	16.11	0.00	0.60	5.51	3.29	27.33	11.72	0.00	4.51	**87.02**	**215.42**
	Proposed Impervious (acres)		5.00	1.17	5.07	0.73	3.00	4.96	1.80	0.00	1.58	1.77	0.86	**25.94**		0.16	2.43	7.66	5.64	2.50	0.92	8.84	3.85	13.76	4.32	4.50	1.74	6.08	3.41	**65.81**		2.04	6.7	1.46	1.12	4.65	1.68	5.63	4.96	10.26	**38.50**		3.00	4.69	2.06	8.20	16.35	0.00	0.80	5.05	3.19	27.62	9.43	0.00	4.20	**84.59**	**214.84**
	Change in Impervious (acres)		-0.40	0.02	-0.20	-0.03	0.11	0.38	0.00	0.00	0.66	0.00	0.00	**0.54**		0.00	-0.21	1.75	-0.25	0.00	-0.03	-0.10	1.50	0.95	-0.24	0.00	-0.21	0.00	-0.23	**2.93**		0.00	-0.10	0.03	0.03	-0.65	-0.25	-0.42	-0.14	-0.06	**-1.56**		0.30	-0.40	0.00	0.10	0.24	0.00	0.20	-0.46	-0.10	0.29	-2.29	0.00	-0.31	**-2.43**	**-0.52**
	New Impervious (acres)		0.00	0.02	0.00	0.00	0.11	0.38	0.00	0.00	0.66	0.00	0.00	**1.17**		0.00	0.00	1.76	0.00	0.00	0.00	0.00	1.50	0.96	0.00	0.00	0.00	0	0	**4.22**		0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	**0.03**		0.30	0.00	0.00	0.10	0.24	0.00	0.20	0.00	0.00	0.29	0.72	0.00	0.00	**1.85**	**7.27**
	Reconstructed Impervious (acres)		5.00	1.15	5.07	0.73	2.89	4.58	1.80	0.00	0.92	1.77	0.86	**24.77**		0.16	2.43	5.91	5.64	2.50	0.92	8.84	2.35	12.81	4.32	4.50	1.74	6.08	2.56	**60.76**		2.04	0.9	1.46	1.09	4.65	1.68	5.63	4.96	0.93	**23.34**		2.70	4.69	2.06	0.80	1.16	0.00	0.00	5.05	3.19	0.00	8.77	0.00	4.20	**32.62**	**141.49**
	Total New and Reconstructed Impervious (acres)		5.00	1.17	5.07	0.73	3.00	4.96	1.80	0.00	1.58	1.77	0.86	**25.94**		0.16	2.43	7.66	5.64	2.50	0.92	8.84	3.85	13.76	4.32	4.50	1.74	6.08	2.56	**64.96**		2.04	0.9	1.46	1.12	4.65	1.68	5.63	4.96	0.93	**23.37**		3.00	4.69	2.06	0.90	1.40	0.00	0.20	5.05	3.19	0.29	9.49	0.00	4.20	**34.47**	**148.74**
Assuming Previous (2015) BCWMC Requirement:	Trigger MIDS at 1 acre of new/fully reconstructed impervious	MIDS Treatment: Capture & retain larger of 1.1 inches off the net increase in impervious – or – 0.55 inches off the new/fully reconstructed impervious (acre-feet). Follow flexible treatment options if volume reduction is not feasible or not allowed. (Assumed larger of two for figures to right)	0.23	0.05	0.23	0 [1]	0.14	0.23	0.08	0	0.07	0.08	0	**1.11**		0 [1]	0.11	0.35	0.26	0.11	0	0.41	0 [1]	0.63	0.2	0.21	0.08	0.28	0.12	**2.76**		0.09	0	0.07	0.05	0.21	0.08	0.26	0.23	0	**0.99**		0.14	**0.21**	**0.09**	**0.00**	**0.06**	**0.00**	**0.00**	**0.23**	**0.15**	**0.00**	**0.43**	**0.00**	**0.19**	**1.50**	**6.36**
Assuming Current BCWMC Requirement:	Trigger treatment at 1 acre of net new impervious	Capture & retain 1.1 inches off the net new impervious area (acre-feet). Follow flexible treatment options if volume reduction is not feasible or not allowed.	0	0	0	0 [1]	0	0	0	0	0	0	0	**0.00**		0 [1]	0	0.16	0	0	0	0	0 [1]	0	0	0	0	0	0	**0.16**		0	0	0	0	0	0	0	0	0	**0.00**		0	0	0	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.16**
Assuming Current MPCA MS4 General Permit Requirement:	Trigger treatment at 1 acre or more of new/fully reconstructed impervious	The water quality volume must be calculated as the larger of 1 inch times the new impervious surface or 0.5 inches times the sum of the new and the fully reconstructed impervious surface (acre-feet) (Assumed larger of two for figures to right.) If not feasible, maximize the treatment of the water quality volume prior to discharge from the MS4. [9]	0.21	0.05	0.21	0 [1]	0.13	0.21	0.08	0	0.07	0.07	0	**1.03**		0 [1]	0.1	0.32	0.24	0.1	0	0.37	0 [1]	0.57	0.18	0.19	0.07	0.25	0.11	**2.50**		0.09	0	0.06	0.05	0.2	0.07	0.23	0.2	0	**0.90**		**0.13**	**0.20**	**0.90**	**0.00**	**0.06**	**0.00**	**0.00**	**0.21**	**0.13**	**0.00**	**0.40**	**0.00**	**0.18**	**2.21**	**6.64**
Capture and Retain Volume Provided (acre-feet) [2]			0 [4]	- [3]	0 [5]	0 [1]	- [3]	0	0	0	0	0	0			0 [1]	- [3]	- [6]	0	0	- [3]	- [7]	0 [3]	0	0	0	0	0	0			0	0	0	- [3]	0	- [3,8]	0	0																	
Site Constraints	1 = Poor Soils 3 = Space (Right of Way) Constraints 5 = Drinking Water Management Areas 7 = Contaminated Soils 9 = Other 2 = High Groundwater 4 = Infiltration & Inflow Concerns 6 = Karst Areas 8 = Shallow Bedrock		More discussion and coordination needed with applicants to evaluate and determine whether any site constraints were present for each specific project.													More discussion and coordination needed with applicants to evaluate and determine whether any site constraints were present for each specific project.															More discussion and coordination needed with applicants to evaluate and determine whether any site constraints were present for each specific project.																											
Estimated Water Quality Treatment Provided	TP Loading from Existing (Pre-Project) Impervious (lb/year)		9.61	2.05	9.38	1.35	5.14	8.15	3.20	0	1.64	3.15	1.53	**45.21**		0.28	4.70	10.52	10.48	4.45	1.69	15.91	4.18	22.80	8.12	8.01	3.47	10.82	6.48	**111.93**		3.63	12.10	2.65	1.94	9.43	3.44	10.77	9.08	18.37	**71.41**		4.81	9.06	3.67	14.42	28.68	0.00	1.07	9.81	5.86	48.65	20.86	0.00	8.03	#####	**383.45**
	TP Loading from Proposed (Post-Project) Impervious (lb/year)		8.90	2.08	9.02	1.30	5.34	8.83	3.20	0	2.81	3.15	1.53	**46.17**		0.28	4.33	13.63	10.04	4.45	1.64	15.74	6.85	24.49	7.69	8.01	3.10	10.82	6.07	**117.14**		3.63	11.93	2.60	1.99	8.28	2.99	10.02	8.83	18.26	**68.53**		5.34	8.35	3.67	14.60	29.10	0.00	1.42	8.99	5.68	49.16	16.79	0.00	7.48	#####	**382.42**
	Difference in TP Loading from Existing (Pre-Project) to Proposed (Post-Project) (lb/year)		-0.71	0.04	-0.36	-0.05	0.20	0.68	0	0	1.17	0	0	**0.96**		0	-0.37	3.12	-0.45	0	-0.05	-0.18	2.67	1.69	-0.43	0	-0.37	0	-0.41	**5.22**		0.00	-0.18	0.05	0.05	-1.16	-0.45	-0.75	-0.25	-0.11	**-2.78**		0.53	-0.71	0.00	0.18	0.43	0.00	0.36	-0.82	-0.18	0.52	-4.08	0.00	-0.55	**-4.33**	**-0.93**
	TP Removal (lb/year)		0 [4]	- [3]	6.34 [5]	- [1]	- [3]	- [3]	0	0	0	0	0			- [1]	- [3]	17.0 [6]	- [3]	0	- [3]	9.85 [7]	- [1]	- [3]	- [3]	0	0	- [3]	- [3]			0	0	0	- [3]	0	- [3]	0	0			- [3]	- [3]	- [3]	0	0	0	- [3]	- [3]	0	0	0	0	- [3]		
	TP Removal (%)		0% [4]	- [3]	64% [5]	- [1]	- [3]	- [3]	0%	0%	0%	0%	0%			- [1]	- [3]	550% [6]	- [3]	0%	- [3]	55% [7]	- [1]	- [3]	- [3]	0%	0%	- [3]	- [3]			0%	0%	0%	0%	- [3]	0%	- [3]	0%	0%			- [3]	- [3]	- [3]	0%	0%	0%	- [3]	- [3]	0%	0%	0%	0%	- [3]		

[1] Trails and sidewalks and other miscellaneous disconnected impervious surfaces are exempt from BCWMC water quality performance goals. Adjacent pervious areas may provide some pretreatment or water quality treatment.

[2] Projects with site restrictions may not be required to "capture & retain" the water quality volume. These projects must follows BCWMC Flexible Treatment Options (FTOs).

[3] Water quality treatment/pretreatment provided by project but documentation not submitted or not reviewed.

2018-02: Project included 5 new sump manholes for pretreatment. Drainage routed to existing ditches and wetlands along linear project which may also provide some water quality treatment and/or infiltration.
2018-07: Project included 18,905 cubic-foot Stormtech underground detention and infiltration system.
2018-08: Project included 4 new sump manholes for pretreatment.
2018-30: Project included 1 new sump manhole for pretreatment and an underground filtration trench to provide water quality treatment and/or infiltration.
2019-02: Project included 2 new sump manholes with SAFL baffles for pretreatment.
2019-05: Project included 4 new sump manholes for pretreatment. Drainage routed to existing stormwater ponds, which were improved as part of this project and provide water quality treatment.
2019-28: Project included 23 new sump manholes with SAFL baffles for pretreatment.
2020-01: Project included 1 new sump manhole for pretreatment.
2020-12: Project included 1 new sump manhole for pretreatment.
2020-13: Project was designed to maximized the amount of runoff that is routed to ditches and infield ponding areas in order to maximize pretreatment and water quality treatment.
2021-28: Project included 2 new sump manholes with SAFL baffles for pretreatment.
2021-35: Project included 5 new sump manholes with SAFL baffles for pretreatment
2022-21: Project included 1 new sump manhole for pretreatment.
2022-23: Project included iron enhanced filtration basin and 2 new sump manholes for pretreatment
2022-26: Project included 4 new sump manholes for pretreatment
2023-23: Project included 1 new sump manhole for pretreatment.
2023-25: Project included 3 new sump manholes with SAFL baffles for pretreatment
2024-09: Project included 5 new sump manholes with SAFL baffles for pretreatment

[4] Draft 90% designs for the project included 6 new sump manholes for pretreatment. However, the city asked that these be removed from the final design due to access and maintenance concerns, minimal effectiveness, and future stormwater improvement plans for the area.

[5] No volume retained specifically as part of project, but a filtration basin proposed as mitigation for 2016 PMP project and 2017 PMP project.

[6] Project included existing regional stormwater ponds, filtration basins, and swales within the construction limits that were utilized to demonstrate compliance to BCWMC requirements.

[7] Water quality treatment provided as part of BCWMC Capital Improvement Program (CIP) Project CL-3 in conjunction with this project.

[8] City of Plymouth was working with home owners to install two raingardens for additional water quality treatment

[9] Where the entire water quality volume cannot be treated within the existing right-of-way, a reasonable attempt to obtain additional right-of-way, easement, or other permission to treat the stormwater during the project planning process must be made. Volume reduction practices must be considered first, as described in item 20.8. Volume reduction practices are not required if the practices cannot be provided cost effectively. If additional right-of-way, easements, or other permission cannot be obtained, owners of construction activity must maximize the treatment of the water quality volume prior to discharge from the MS4.