



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

DEC 21 2015

REPLY TO THE ATTENTION OF:

WW-16J

Rebecca Flood, Assistant Commissioner
Water Policy/Agriculture Liaison
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Dear Ms. Flood:

The U.S. Environmental Protection Agency has conducted a complete review of the final Total Maximum Daily Loads (TMDLs) for four lakes in the Eagan Lakes watershed, including supporting documentation and follow up information. The Eagan Lakes watershed is located in the Minneapolis Metro area, in Dakota County. The TMDLs were calculated for total phosphorus. The TMDLs address the impairment of aquatic recreational uses.

EPA has determined that these TMDLs meet the requirements of Section 303(d) of the Clean Water Act and EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, EPA hereby approves Minnesota's four TMDLs in the Eagan Lakes watershed. The statutory and regulatory requirements, and EPA's review of Minnesota's compliance with each requirement, are described in the enclosed decision document. EPA also agrees that the protection measures outlined in the TMDL document for eight lakes (Table 1 of the enclosed Decision Document) are sufficient to maintain the existing water quality in the lakes. EPA agrees these measures are appropriate for consideration as "protection strategies" as described in the "Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program".

We wish to acknowledge Minnesota's effort in submitting these TMDLs and protection strategies, addressing aquatic recreational use, and look forward to future submissions by the State of Minnesota. If you have any questions, please contact Mr. Peter Swenson, Chief of the Watersheds and Wetlands Branch, at 312-886-0236.

Sincerely,

A handwritten signature in blue ink that reads "Tinka G. Hyde".

Tinka G. Hyde
Director, Water Division

Enclosure

TMDL: Eagan Lakes TMDLs, Dakota County, MN

Date: DEC 21 2015

DECISION DOCUMENT FOR THE EAGAN LAKES TMDLS, DAKOTA COUNTY, MN

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term "should" below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and EPA's TMDL regulations should be resolved in favor of the regulations themselves.

1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the waterbody as it appears on the State's/Tribe's 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see Section 2 below).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the waterbody. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This information is necessary for EPA's review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

- (1) the spatial extent of the watershed in which the impaired waterbody is located;
- (2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
- (3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
- (4) present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and
- (5) an explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and

turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Comment:

Location Description/Spatial Extent:

The Eagan Lakes watershed is located in Dakota County, Minnesota, just south of Minneapolis. There are a total of 12 lakes addressed in the TMDL, subdivided into several smaller groups (Table 1 and Figure 1 below). The lake drainage areas are almost all in the City of Eagan; a small portion lies in the neighboring Cities of Inver Grove Heights (LP-30 and Hay Lakes) and Apple Valley (Cliff Lake). The lakes drain to the Minnesota River through various surface water pathways. The lakes are fairly small, with the largest at 32 acres, and 9 of the 12 less than 15 acres.

Four of the lakes (Carlson, Fitz, Holz, and LeMay) were placed on the MPCA draft 303(d) list of impaired waters in 2014 due to high phosphorus levels, and have TMDLs developed. Four other lakes (Bur Oaks, Hay, LP-30, and North) were meeting water quality standards. Two lakes (Bald and Cliff) have high phosphorus levels but do not show any response indicators (chlorophyll-a and Secchi), so MPCA does not consider these lakes impaired. Two of the lakes were redefined as wetlands. Minnesota has not re-assessed the waters based upon the criteria for wetlands, and therefore, the waterbodies were not determined to be impaired. To address the eight waterbodies not listed as impaired, MPCA developed protection strategies to ensure the waterbodies do not become impaired.

Table 1 below lists the waterbodies addressed by this TMDL.

Table 1 Waterbodies Addressed by the Eagan Lakes Watershed TMDL

Waterbody	AUID #	Pollutant	Status
Carlson	19-0066-00	phosphorus	TMDL
Fitz	19-0077-00	phosphorus	TMDL
Holz	19-0064-00	phosphorus	TMDL
LeMay	19-0055-00	phosphorus	TMDL
Bald	19-0061-00	phosphorus	Protection Strategy
Bur Oaks	19-0259-00	phosphorus	Protection Strategy
Cliff	19-0068-00	phosphorus	Protection Strategy
Hay	19-0062-00	phosphorus	Protection Strategy
LP-30	19-0053-00	phosphorus	Protection Strategy
North	19-0136-00	phosphorus	Protection Strategy
O'Leary	19-0056-00	phosphorus	Protection Strategy - Wetland
Quigley	19-0155-00	phosphorus	Protection Strategy - Wetland

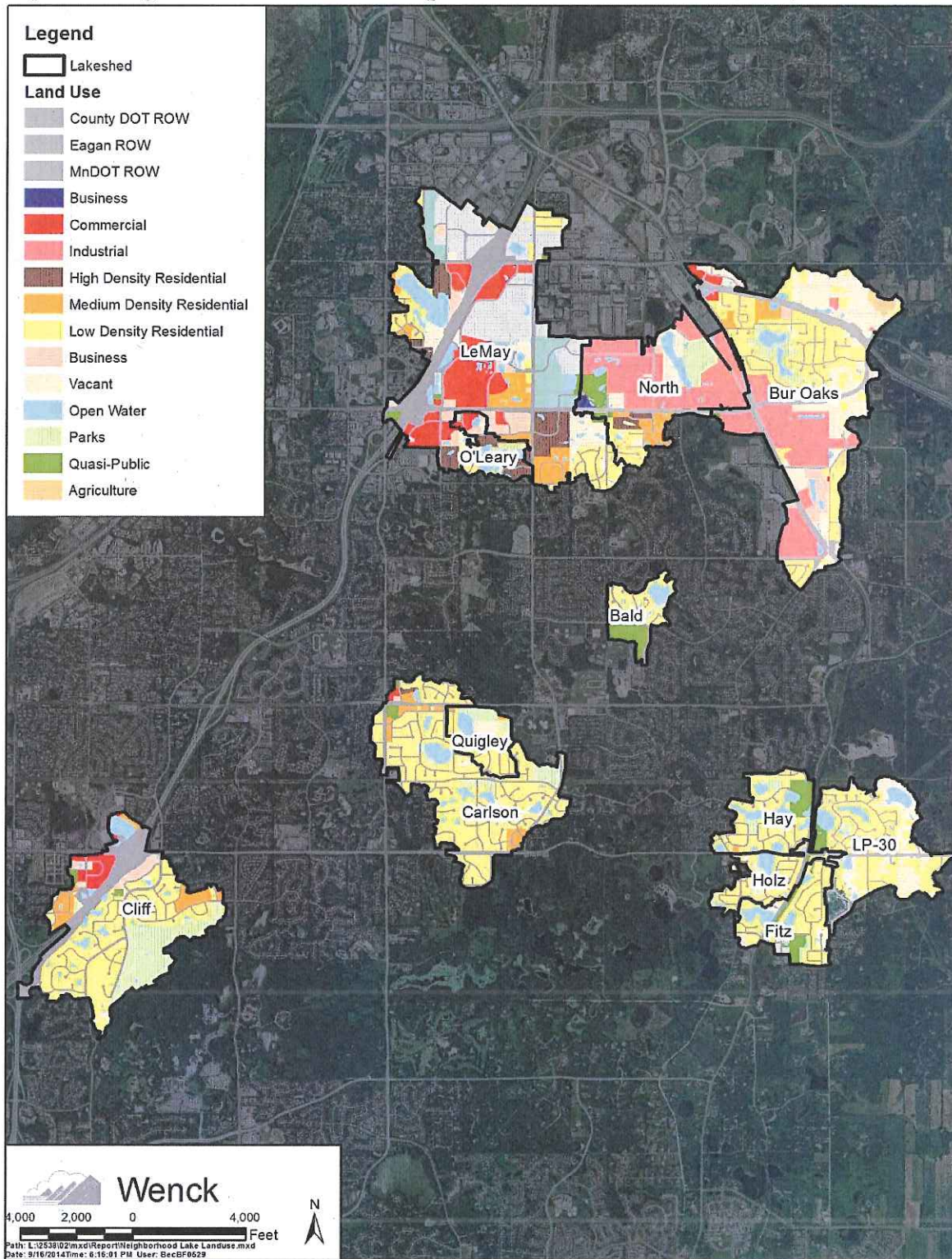
Table 2: Lake Morphometry

Lake Name	Surface Area	Average Depth	Maximum Depth	Lake Volume	Residence Time	Littoral Area	Depth Class	Total Drainage Area ¹
Units	acre	feet	feet	ac-ft	years	%	--	acre
Bald	10	6	9	60	2.5	100%	Shallow	103
Bur Oaks	10.8	2.4	9	26	0.1	100%	Shallow	944
Carlson	12	8.4	19	100	0.5	74%	Deep	664
Cliff	11.8	2.8	7	33	0.2	100%	Shallow	619
Fitz	12.3	5.5	11	68	1.3	100%	Shallow	210
Hay	22	3.9	9	82	0.5	100%	Shallow	809
Holz	10	5.9	10	59	0.7	100%	Shallow	318
LeMay	32	5.3	16	168	0.3	99%	Shallow	1,279
LP-30	9	10.3	14	94	1.6	98%	Shallow	325
North	16	4.8	11	77	0.1	100%	Shallow	1,396
O'Leary	9.3	2.9	10	27	1.5	100%	Wetland ²	88
Quigley	15	3.1	6	48	1.8	100%	Wetland ²	105

1 – includes upstream lakes

2 – considered as wetlands

Figure 1 Eagan Lakes Watershed map



Land Use:

The Eagan Lakes watershed is a primarily urbanized watershed, with residential use predominating, along with some open land (parks), water, and scattered retail/industrial use present. The land uses for the subwatersheds are in Table 3 of this Decision Document. Almost all of the subwatersheds are in the City of Eagan; a small portion lies in the neighboring cities of Inver Grove Heights (LP-30 and Hay Lakes) and Apple Valley (Cliff Lake). MPCA does not anticipate significant changes in phosphorus loading due to changes in land use within the Eagan Lakes watershed. Virtually all the land in the watershed addressed by this TMDL is in Municipal Separate Storm Sewer System (MS4) areas, and therefore any changes in land use will be subject to the wasteload allocations (WLAs) calculated for each MS4 (Section 4 of the TMDL).

Table 3 Land Uses in the Eagan Lakes Subwatersheds

Lake	Area (Acres)	Right of Way	Residential	Water	Open Area	Retail/Industrial	Agricultural
Bald	103	13%	46%	11%	30%	0%	0%
Bur Oaks	944	15%	52%	3%	4%	25%	2%
Carlson	664	20%	64%	8%	8%	1%	0%
Cliff	619	25%	43%	5%	19%	7%	0%
Fitz	210	17%	60%	11%	10%	2%	0%
Hay	809	15%	51%	18%	16%	0%	0%
Holz	318	24%	52%	12%	12%	0%	0%
LeMay	1,279	21%	27%	8%	2%	42%	0%
LP-30	325	0%	85%	10%	4%	0%	0%
North	1,396	13%	42%	4%	6%	33%	1%
O'Leary	88	7%	57%	21%	13%	2%	0%
Quigley	105	10%	58%	15%	18%	0%	0%

Problem Identification:

The four impaired lakes are on the 2014 draft 303(d) list due to excessive phosphorus. MPCA utilized data from the City of Eagan lake sampling program to determine that all 12 of the lakes are impaired or need protection due to elevated levels of total phosphorus and the related response criteria for chlorophyll-a and Secchi depth (Table 2.3 of the TMDL).

Pollutant:

While total phosphorus (TP) is an essential nutrient for aquatic life, elevated concentrations of TP can lead to nuisance algal blooms that negatively impact aquatic life and recreation (swimming, boating, fishing, etc.). Algal decomposition depletes oxygen levels which stresses benthic macroinvertebrates and fish. Excess algae can shade the water column which limits the distribution of aquatic vegetation. Aquatic vegetation stabilizes bottom sediments, and also is an important habitat for macroinvertebrates and fish. Furthermore, depletion of oxygen can cause phosphorus release from bottom sediments (i.e. internal loading).

Degradations in aquatic habitats or water quality (ex. low dissolved oxygen) can negatively impact aquatic life use. Increased turbidity, brought on by elevated levels of nutrients within the water column, can reduce dissolved oxygen in the water column, and cause large shifts in dissolved oxygen and pH throughout the day. Shifting chemical conditions within the water column may stress aquatic biota (fish and macroinvertebrate species). In some instances,

degradations in aquatic habitats or water quality have reduced fish populations or altered fish communities from those communities supporting sport fish species to communities which support more tolerant rough fish species.

Priority Ranking:

The Eagan Lakes watershed was given priority for TMDL development due to the impairment impacts on aquatic life, the public value of the impaired water resource, the likelihood of completing the TMDL in an expedient manner, and the technical capability and the willingness of local partners to assist with the TMDL. Water quality degradation has led to efforts to improve the overall water quality within the Eagan Lakes watershed, and to the development of a TMDL.

Pollutant of Concern:

The pollutant of concern is phosphorus.

Source Identification (point and nonpoint sources):

Point Source Identification: The point sources for the Eagan Lakes nutrient TMDLs are:

NPDES permitted facilities: There are no individual NPDES facilities within the Eagan Lakes watershed which discharge phosphorus.

MS4 communities: There are four MS4 permittees within the Eagan Lakes watershed, including the Minnesota Department of Transportation (MnDOT) (Table 3 of this Decision Document; Table 4.3 of the TMDL). Stormwater from MS4s can transport phosphorus to surface water bodies during or shortly after storm events. Each of the MS4 communities within Table 4 of this Decision Document was assigned a WLA. The eight protection waters have “recommended” WLAs, as they do not have formally approved TMDLs. MPCA determined that all subwatersheds were within MS4-permitted areas.

Table 4: Regulated MS4 Permittees in the Eagan Lakes watershed nutrient TMDL

MS4 Permittees		City of Eagan MS400014	City of Inver Grove Heights MS400096	MnDOT MS400170	Dakota County MS400132
Carlson	19-0066	yes			yes
Fitz	19-0077	yes	yes	yes	
Holz	19-0064	yes	yes	yes	
LeMay	19-0055	yes		yes	yes

Permitted Construction and Industrial Areas: Construction and industrial sites may contribute phosphorus via sediment runoff during stormwater events. These areas within the Eagan Lakes watershed must comply with the requirements of the MPCA’s NPDES Stormwater Program. The NPDES program requires construction and industrial sites to create Stormwater Pollution Prevention Plans (SWPPPs) which summarize how stormwater pollutant discharges will be minimized from construction and industrial sites.

Combined Sewer Overflows (CSOs): There are no CSO communities in the Eagan Lakes watershed.

Concentrated Animal Feeding Operations (CAFOs): There are no CAFOs within the Eagan Lakes watershed.

Nonpoint Source Identification: There are very limited nonpoint sources of phosphorus in the Eagan Lakes watershed, as the entire areal extent of the watershed is regulated under MS4 permits. The potential nonpoint sources for the Eagan Lakes nutrient TMDLs are:

Atmospheric deposition: Phosphorus may be added via particulate deposition. Particles from the atmosphere may fall onto lake surfaces or other surfaces within the Eagan Lakes watershed. Phosphorus can be bound to these particles which may add to the phosphorus inputs to surface water environments.

Upstream Loads: Some of the lakes have upstream lakes which contribute phosphorus (Section 3.2.2 of the TMDL). To attain water quality standards in the downstream lakes, water quality in the upstream lakes must be attained or maintained.

Wildlife: Wildlife is a known source of nutrients in water bodies as many animals spend time in or around water bodies. Deer, geese, ducks, raccoons, and other animals all create potential sources of nutrients. Wildlife contributes to the potential impact of contaminated runoff from animal habitats, such as park areas, forest, and rural areas.

Internal loading: The release of phosphorus from lake sediments via physical disturbance from benthic fish (rough fish, ex. carp), from wind mixing the water column, and from decaying curly-leaf pondweed may all contribute internal phosphorus loading to the three lakes. Phosphorus may build up in the bottom waters of the lake and may be resuspended or mixed into the water column when the thermocline decreases and the lake water mixes.

Future Growth:

The entire areal extent of the Eagan Lakes watershed is covered under MS4 permits. MPCA does not expect the load allocations to change in the future. The wasteload and load allocations were calculated for all current sources. Any expansion of point or nonpoint sources will need to comply with the respective WLA and LA values calculated in the Eagan Lakes watershed TMDLs.

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the first criterion.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy (40 C.F.R. §130.7(c)(1)). EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the

pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

Comment:

Designated Uses:

Minnesota Rule Chapter 7050 designates uses for waters of the state. The Eagan Lakes waterbodies addressed by this TMDL are all designated as Class 2B waters for aquatic recreation use (boating, swimming, fishing, etc.). The Class 2 aquatic recreation designated use is described in Minnesota Rule 7050.0140 (3):

“Aquatic life and recreation includes all waters of the state that support or may support fish, other aquatic life, bathing, boating, or other recreational purposes and for which quality control is or may be necessary to protect aquatic or terrestrial life or their habitats or the public health, safety, or welfare.”

Standards:

Narrative Criteria: Minnesota Rule 7050.0150 (3) set forth narrative criteria for Class 2 waters of the State:

“For all Class 2 waters, the aquatic habitat, which includes the waters of the state and stream bed, shall not be degraded in any material manner, there shall be no material increase in undesirable slime growths or aquatic plants, including algae, nor shall there be any significant increase in harmful pesticide or other residues in the waters, sediments, and aquatic flora and fauna; the normal fishery and lower aquatic biota upon which it is dependent and the use thereof shall not be seriously impaired or endangered, the species composition shall not be altered materially, and the propagation or migration of the fish and other biota normally present shall not be prevented or hindered by the discharge of any sewage, industrial waste, or other wastes to the waters.”

Numeric criteria:

Numeric criteria for total phosphorus, chlorophyll-a (chl-a), and Secchi Disk (SD) depth are set forth in Minnesota Rules 7050.0222. These three parameters are the eutrophication standards that must be achieved to attain the aquatic recreation designated use. The numeric eutrophication standards which are applicable to the lakes are those set forth for Class 2B shallow and deep lakes in the North Central Hardwood Forest (NCHF) Ecoregion (Table 5 of this Decision Document). Fitz, Holz, and LeMay lakes are defined as shallow lakes, while Carlson Lake is defined as a deep lake. In developing the lake nutrient standards for Minnesota lakes, the MPCA evaluated data from a large cross-section of lakes within each of the State’s ecoregions. Clear relationships were established between the causal factor, TP, and the response variables, chl-a and SD (Section 1.6 of the TMDL).

Table 5: MPCA Eutrophication Criteria for shallow and deep lakes in the NCHF Ecoregion

Parameter	Eutrophication Standard (shallow)	Eutrophication Standard (deep)
Total Phosphorus (µg/L)	TP ≤ 60	TP ≤ 40
Chlorophyll-a (µg/L)	chl-a ≤ 20	chl-a ≤ 14
Secchi Depth (m)	SD ≥ 1.0	SD ≥ 1.4

Target:

MPCA selected a target of 40 µg/L of TP (deep lakes) or 60 µg/L of TP (shallow lakes) to develop the lake nutrient TMDLs. To develop the protection strategies, MPCA used the shallow lakes criteria as noted in Table 4 above.

MPCA selected total phosphorus as the appropriate parameter to address eutrophication problems in the lakes because of the interrelationships between TP and chl-a, as well as SD. Algal abundance is measured by chl-a, which is a pigment found in algal cells. As more phosphorus becomes available, algae growth can increase. Increased algae in the water column will decrease water clarity that is measured by SD.

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the second criterion.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a waterbody for the applicable pollutant. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

Comment:

The approach utilized by the MPCA to calculate the loading capacity for the Eagan Lakes for nutrients was described in Sections 3 and 4 and Appendices F and H of the final TMDL document.

Runoff modeling: The watershed for each of the 12 lakes is urbanized, and little natural drainage remains. The watersheds are drained by stormwater drainage systems consisting of a series of pipes, ponds, and other stormwater features. To model the watersheds, MPCA used the PONDNET model. PONDNET is a spreadsheet model that allows the user to link precipitation run-off into stormwater systems and then to "route" water through wet detention ponds, and to track changes in flows and pollutant loads. The model allows a user to predict the generation and transport of stormwater runoff pollutants in urban watersheds. Water-balance and mass-balance calculations are performed on a user-defined system (Appendix F of the TMDL).

The City of Eagan has used PONDNET for several years. MPCA and the City of Eagan staff updated the model to account for any new stormwater pathways and changes in pond size. After delineating the boundaries of the MS4 districts, MPCA determined the amount of impervious cover in the watershed of each of the lakes (Section 3.2.1 and Appendix F of the TMDL). MPCA then analyzed the stormwater features (ponds, weir heights, etc.) and developed a routing "map" of stormwater in each watershed. Model runoff coefficients were revised as needed to validate the model. Watershed water and phosphorus balances were developed for the four impaired lakes as well as the other protection lakes.

The model also accounted for loads from upstream lakes. Loads from atmospheric deposition of phosphorus were also estimated, based upon results from studies in Minnesota (Section 3.2.3 of the TMDL). Internal loading of TP was calculated based upon core samples of the lake sediments. Almost all of the lakes were sampled for internal loading (Appendix G of the TMDL).

In-Lake modeling: Once the watershed loading calculations were developed for each lake, MPCA used BATHTUB to determine the water quality based upon the TP loading. The BATHTUB model applies a series of empirical equations derived from assessments of lake data and performs steady state water and nutrient calculations based on lake morphometry and tributary inputs. The BATHTUB model requires fairly simple inputs to predict phosphorus loading. The model accounts for pollutant transport, sedimentation, and nutrient cycling. The model was used to determine both the current load (Appendix H of the TMDL) and the load needed to meet or maintain water quality standards for each lake (Section 4.1 of the TMDL).

The Canfield-Bachmann subroutine was used in the BATHTUB model to determine how each lake responded to the TP loading. The model parameters were adjusted until the model predictions fit the sample data. Once the data were calibrated, the source loads were reduced until the in-lake concentration met the appropriate WQS (Section 4.2 of the TMDL)

MPCA subdivided the loading capacity among the WLA, LA and MOS components of the TMDL (Tables 6-9 of this Decision Document). For the protection strategy lakes, nutrient budgets were developed, which are designed to ensure the lakes do not become impaired (Tables 10-17 of this Decision Document; Section 4.3 of the TMDL). These calculations were based on the critical condition, the summer growing season, which is typically when the water quality in

the lake is degraded and phosphorus loading impacts are the greatest. TMDL allocations assigned during the summer growing season will protect the lakes during the worst water quality conditions of the year. The MPCA assumed that the loading capacities established by the TMDL will be protective of water quality during the remainder of the calendar year (October through May).

EPA supports the data analysis and modeling approach utilized by MPCA in their calculation of wasteload allocations, load allocations and the margin of safety for the Eagan Lakes TMDLs. Additionally, EPA concurs with the loading capacities calculated by the MPCA in the Eagan Lakes TMDLs and protection strategies. EPA finds MPCA's approach for calculating the loading capacities to be reasonable and consistent with EPA guidance.

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the third criterion.

TMDL Lakes

Table 6: TMDL Summary for Carlson Lake (Lake ID: 19-0066-00)

	Existing TP Load lbs/yr	Allowable TP load		Load Reduction		
		lbs/yr	lbs/day	lb/yr	%	
Wasteload	Total WLA		32.8	0.09		
	Construction/Industrial SW	0.4	0.4	0.001	0.0	0
	City of Eagan MS4	41.8	30.3	0.083	11.5	28
	Dakota County Right of Way	2.7	2.1	0.006	0.6	22
Load	Total LA		14.0	0.039		
	Upstream Lakes	4.6	3.7	0.010	0.9	20
	Atmospheric deposition	2.8	2.8	0.008	0.0	0
	Internal load	13.2	7.5	0.021	5.7	43
MOS			1.7	0.005		
Total Load		65.5	48.5	0.134	18.7	26%

Table 7: TMDL Summary for Fitz Lake (ID:19-0064-00)

	Existing TP Load lbs/yr	Allowable TP load		Load Reduction		
		lbs/yr	lbs/day	lb/yr	%	
Wasteload	Total WLA		8.5	0.0234		
	Construction/Industrial SW	0.1	0.1	0.0004	0.0	0%
	City of Eagan MS4	12.6	7.3	0.0200	5.3	42%
	City of Inver Grove Heights MS4	0.6	0.6	0.0017	0.0	0%
	MnDOT right of Way	0.5	0.5	0.0013	0.0	0%
Load	Total LA		11.1	0.0305		
	Atmospheric deposition	2.9	2.9	0.0081	0.0	0%
	Internal load	26.8	8.2	0.0224	18.6	69%
MOS			0.4	0.0012		
Total Load		43.5	20.0	0.0551	23.9	54%

Table 8: TMDL Summary for Holz Lake

		Existing TP Load lbs/yr	Allowable TP load		Load Reduction	
			lbs/yr	lbs/day	lb/yr	%
Wasteload	Total WLA		9.3	0.0254		
	Construction/Industrial SW	1.0	1.0	0.0028	0.0	0%
	City of Eagan MS4	7.8	6.8	0.0186	1.0	13%
	City of Inver Grove Heights MS4	0.5	0.5	0.0013	0.0	0%
	Dakota County Right of Way	0.6	0.6	0.0016	0.0	0%
	MnDOT right of Way	0.4	0.4	0.0011	0.0	0%
Load	Total LA		20.1	0.0548		
	Upstream Lakes	13.3	9.5	0.0260	3.8	29%
	Atmospheric deposition	2.4	2.4	0.0065	0.0	0%
	Internal load	12.4	8.2	0.0223	4.2	34%
MOS			0.5	0.0013		
Total Load		38.4	29.9	0.0815	9.0	22%

Table 9: TMDL Summary for LeMay Lake (Lake ID: 19-0055-00)

		Existing TP Load lbs/yr	Allowable TP load		Load Reduction	
			lbs/yr	lbs/day	lb/yr	%
Wasteload	Total WLA		115.1	0.316		
	Construction/Industrial SW	1.6	1.6	0.004	0.0	0%
	City of Eagan MS4	131.5	95.6	0.263	35.6	27%
	Dakota County Right of Way	6.6	5.2	0.014	1.5	21%
	MnDOT right of Way	16.3	12.7	0.035	3.6	22%
Load	Total LA		17.1	0.047		
	Atmospheric deposition	7.6	7.6	0.021	0.0	0%
	Internal load	19.9	9.5	0.026	10.4	52%
MOS			6.1	0.017		
Total Load		183.5	138.6	0.380	51.1	24%

Protection Strategy Lakes

Table 10: Nutrient Budget for Bald Lake (Lake ID: 19-0061-00)

	Existing TP Load lbs/yr	Target TP load		Load Reduction	
		lbs/yr	lbs/day	lb/yr	%
Construction/Industrial SW	0.1	0.1	0.0002	0	0
City of Eagan MS4	7.9	7.9	0.0215	0	0
Atmospheric deposition	2.4	2.4	0.0065	0	0
Internal load	18.8	9.7	0.0264	9.1	49*
MOS	-	0.4	0.0011		
Total	29.2	20.5	0.0557	9.7	30

* Bald Lake has high phosphorus levels, but the response indicators are not elevated, MPCA has determined the lake to not be impaired but needing phosphorus reductions and MOS to ensure future water quality.

Table 11: Nutrient Budget for Bur Oaks Lake (Lake ID: 19-0259-00)

	Existing TP Load lbs/yr	Target TP load		Load Reduction	
		lbs/yr	lbs/day	lb/yr	%
Construction/Industrial SW	0.7	0.7	0.002	0	0
City of Eagan MS4	42.3	42.3	0.116	0	0
City of Inver Grove Heights	17.4	17.4	0.048	0	0
Dakota County Right of Way	0.3	0.3	0.001	0	0
MnDOT Right of Way	4.6	4.6	0.013	0	0
Upstream Lakes	0	0	0	0	0
Atmospheric deposition	2.5	2.5	0.007	0	0
Internal load	7.2	1.9	0.005	5.3	74*
Total	75.0	69.7	0.192	5.3	7

* Sediment anoxic release rates were relatively high in Bur Oaks Lake, and MPCA has determined the lake to be needing phosphorus reductions to ensure future water quality.

Table 12: Nutrient Budget for Cliff Lake (Lake ID: 19-0068-00)

	Existing TP Load lbs/yr	Target TP load		Load Reduction	
		lbs/yr	lbs/day	lb/yr	%
Construction/Industrial SW	0.4	0.4	0.001	0	0
City of Eagan MS4	29.8	15.8	0.043	14.0	47
MnDOT Right of Way	5.0	2.8	0.008	2.2	43
Atmospheric deposition	2.8	2.8	0.008	0	0
Internal load	31.4	8.9	0.024	22.5	71*
MOS		1.0	0.003		
Total	69.4	31.7	0.087	38.7	54

* Cliff Lake has high phosphorus levels, but the response indicators are not elevated, MPCA has determined the lake to not be impaired but needing phosphorus reductions and MOS to ensure future water quality.

Table 13: Nutrient Budget for Hay Lake (Lake ID: 19-0062-00)

	Existing TP Load lbs/yr	Target TP load		Load Reduction	
		lbs/yr	lbs/day	lb/yr	%
Construction/Industrial SW	0.1	0.1	0.0003	0	0
City of Eagan MS4	11.8	11.8	0.0324	0	0
Dakota County Right of Way	0.2	0.2	0.0005	0	0
MnDOT Right of Way	0.3	0.3	0.0007	0	0
Upstream Lakes	21.4	21.4	0.0587	0	0
Atmospheric deposition	5.3	5.3	0.0144	0	0
Internal load	7.4	7.4	0.0202	0	0
Total	46.5	46.5	0.1272	0	0

Table 14: Nutrient Budget for LP-30 Lake (Lake ID: 19-0053-00)

	Existing TP Load lbs/yr	Target TP load		Load Reduction	
		lbs/yr	lbs/day	lb/yr	%
Construction/Industrial SW	0.1	0.1	0.0004	0	0
City of Eagan MS4	0.8	0.8	0.0021	0	0
City of Inver Grove Heights	12.8	12.8	0.0351	0	0
Atmospheric deposition	2.2	2.2	0.0062	0	0
Internal load	2.5	2.5	0.0068	0	0
Total	18.4	18.4	0.0506	0	0

Table 15: Nutrient Budget for North Lake (Lake ID: 19-0136-00)

	Existing TP Load lbs/yr	Target TP load		Load Reduction	
		lbs/yr	lbs/day	lb/yr	%
Construction/Industrial SW	1.2	1.2	0.003	0	0
City of Eagan MS4	110.0	110.0	0.301	0	0
Dakota County Right of Way	4.7	4.7	0.013	0	0
MnDOT Right of Way	1.2	1.2	0.003	0	0
Upstream Lakes	25.6	25.6	0.070	0	0
Atmospheric deposition	3.8	3.8	0.010	0	0
Internal load	14.6	14.6	0.040	0	0
Total	161.1	161.1	0.440	0	0

Table 16: Nutrient Budget for O'Leary Lake (Lake ID: 19-0056-00)

	Existing TP Load lbs/yr	Target TP load		Load Reduction	
		lbs/yr	lbs/day	lb/yr	%
Construction/Industrial SW	0.1	0.1	0.0002	0	0
City of Eagan MS4	6.5	4.5	0.0123	2.0	31
MnDOT Right of Way	0.1	0.1	0.0002	0	0
Atmospheric deposition	2.2	2.2	0.0061	0	0
Internal load	4.1	2.1	0.0057	2.0	49
MOS		0.2	0.0007		
Total	13.0	9.2	0.0252	4.0	29*

* O'Leary Lake and Quigley Lake are classified as wetlands; MPCA determined the nutrient budget based upon the shallow lake criteria to better manage phosphorus loads.

Table 17: Nutrient Budget for Quigley Lake (Lake ID: 19-0155-00)

	Existing TP Load lbs/yr	Target TP load		Load Reduction	
		lbs/yr	lbs/day	lb/yr	%
Construction/Industrial SW	0.06	0.06	0.0002	0	0
City of Eagan MS4	5.49	3.41	0.0093	2.08	38
Dakota County Right of Way	0.04	0.04	0.0001	0	0
Atmospheric deposition	3.63	3.63	0.0100	0	0
Internal load	8.52	5.56	0.0152	2.96	35
MOS		0.18	0.0005		
Total	17.74	12.88	0.0353	5.04	27*

* O'Leary Lake and Quigley Lake are classified as wetlands; MPCA determined the nutrient budget based upon the shallow lake criteria to better manage phosphorus loads.

4. Load Allocations (LA)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future nonpoint sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, load allocations should be described separately for natural background and nonpoint sources.

Comment:

MPCA recognized the LA for the lake nutrient TMDLs and protection strategies as originating from only a few sources, specifically atmospheric deposition, internal loads, and upstream lakes (Section 3.2 of the TMDL). MPCA subdivided portions of the LA and assigned those values to nonpoint sources dependent on the TMDL subwatershed (Tables 6-9 of this Decision Document). For the lakes addressed through a protection strategy, MPCA did not develop LAs. A series of recommended reductions were determined for selected lakes and the sources discharging to the waterbody. Tables 10-17 of this Decision Document provide target loads for each MS4 permittee in each of the lakes addressed by protection strategies.

MPCA determined the internal loading for the lakes based upon either estimated or measured phosphorus release rates (Section 3.2.4 of the TMDL). Appendix G of the TMDL describes the process used by MPCA, and Table 3.1 of the TMDL summarizes the calculations. The upstream loads were determined by calculating outflow loads from upstream lakes and applying those loads as inflow loads to the downstream lakes. Atmospheric loads were based upon previous state estimates of phosphorus deposition rates across the state (Section 3.2.3 of the TMDL).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the fourth criterion.

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to

reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

Comment:

MPCA assigned a portion of the WLA to four regulated MS4 permittees within the Eagan Lakes TMDLs, and set aside a percentage of each TMDL's loading capacity for construction and industrial stormwater. Table 3 of this Decision Document lists all the MS4 permittees that were assigned WLAs in the nutrient TMDLs. Tables 6-9 of this Decision Document provide the WLAs for each MS4 permittee in each of the four lakes addressed by these TMDLs. For the lakes addressed through a protection strategy, MPCA did not develop WLAs. A series of recommended reductions were determined for selected lakes and the sources discharging to the waterbody. Although these lakes are not impaired, MPCA has determined that controls and/or reductions in phosphorus load is are needed to ensure the lakes remain unimpaired. Tables 10-17 of this Decision Document provide target loads for each MS4 permittee in each of the lakes addressed by protection strategies.

WLAs were assigned based on the necessary TP load reductions for achieving the TP water quality target. To determine the MS4 WLAs, MPCA first determined the land area for each watershed that was under an MS4 permit. MPCA also considered the amount of impervious cover present in each MS4 jurisdiction, and the removal efficiencies of existing stormwater practices. Where the water quality spreadsheet model indicated additional reductions were needed, MPCA reduced the stormwater allocations until the water quality criteria were met.

MPCA set aside 1% of the total WLA to account for TP loading from construction stormwater and 0.5% for TP loading from industrial stormwater. This WLA accounts for any construction stormwater or industrial stormwater generated within the TMDL watersheds (Section 4.1.2.2 of the TMDL).

MPCA explained that BMPs and other stormwater control measures should be implemented at active construction sites to limit the discharge of pollutants of concern. BMPs and other stormwater control measures which should be implemented at construction sites are defined in the State's NPDES/State Disposal System (SDS) General Stormwater Permit for Construction Activity (MNR100001). If a construction site owner/operator obtains coverage under the NPDES/SDS General Stormwater Permit and properly selects, installs and maintains all BMPs required under the permit, including those related to impaired waters discharges and any applicable additional requirements found in Appendix A of the Construction General Permit, the stormwater discharges would be expected to be consistent with the WLA in this TMDL.

The WLA for stormwater discharges from sites where there is industrial activity reflects the number of sites in the watershed for which NPDES industrial stormwater permit coverage is required, and the BMPs and other stormwater control measures that should be implemented at the sites to limit the discharge of pollutants of concern. BMPs and other stormwater control measures which should be implemented at the industrial sites are defined in the State's NPDES/SDS Industrial Stormwater Multi-Sector General Permit (MNR050000) or NPDES/SDS General Permit for Construction Sand & Gravel, Rock Quarrying and Hot Mix Asphalt Production facilities (MNG490000). If a facility owner/operator obtains coverage under the appropriate NPDES/SDS General Stormwater Permit and properly selects, installs and maintains

all BMPs required under the permit, the stormwater discharges would be expected to be consistent with the WLA in this TMDL.

There are no CSOs or CAFOs within the Eagan Lakes watershed, therefore, CSOs and CAFOs were not given an allocation (WLA = 0).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the fifth criterion.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

Comment:

The Eagan Lakes nutrient TMDLs incorporated an explicit MOS of 5% of the WLA, as these are the "controllable" sources in the watersheds. (Tables 6-9 of this Decision Document). MPCA noted that the 5% is reasonable due to the results of the generally good calibration of the PONDNET and BATHTUB models for hydrology and pollutant loading (Appendices F and H of the TMDL). The calibration results indicate the model adequately characterizes the waterbodies, and therefore additional MOS is not needed. MPCA also calculated a recommended MOS for the protection strategy lakes where reductions from run-off sources were proposed. (Tables 10-17 of this Decision Document).

The EPA finds that the TMDL document submitted by the MPCA contains an appropriate MOS satisfying the requirements of the sixth criterion.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variations. (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)).

Comment:

Nutrient influxes to the Eagan Lakes typically occur during wet weather events. Critical conditions that impact the response of the lakes to nutrient inputs occur during periods of low flow in the summer. During low flow periods, nutrients accumulate, there is less assimilative capacity within the water body, water temperatures increase, and algae thrives. Increased algal growth during low flow periods can deplete dissolved oxygen within the water column.

The nutrient targets employed in the Eagan Lakes nutrient TMDLs and protection strategies were based on the average nutrient values collected during the growing season (June 1 to September

30). The water quality criteria were designed to meet the period of the year where the frequency and severity of algal growth is the greatest, the mid-late summer. The mid-late summer time period is typically when eutrophication standards are exceeded and water quality in the lakes is deficient. By calibrating the TMDL development efforts to protect water bodies during the worst water quality conditions of the year, MPCA assumes that the loading capacities established by the TMDLs will be protective of water quality during the remainder of the calendar year (October through May).

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of the seventh criterion.

8. Reasonable Assurance

When a TMDL is developed for waters impaired by point sources only, the issuance of a NPDES permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with, “the assumptions and requirements of any available wasteload allocation” in an approved TMDL.

When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA’s 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

EPA’s August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comment:

The Eagan Lakes TMDLs discuss reasonable assurance activities in Sections 5 and 6 of the TMDL. The main entities responsible for overseeing the pollutant reduction activities will be the MPCA, the Eagan-Inver Grove Watershed Management Organization (EIGWMO), and the City of Eagan.

Reasonable assurance that the WLA set forth in the TMDLs will be implemented is provided by regulatory actions. According to 40 CFR 122.44(d)(1)(vii)(B), NPDES permit effluent limits must be consistent with assumptions and requirements of all WLAs in an approved TMDL. MPCA’s stormwater program is the implementing program for ensuring effluent limits are consistent with the TMDL.

All regulated MS4 communities are required to satisfy the requirements of the MS4 general permit. The MS4 general permit requires the permittee to develop a SWPPP which addresses all permit requirements, including the following six minimum control measures:

- Public education and outreach;
- Public participation;
- Illicit Discharge Detection and Elimination (IDDE) Program;
- Construction-site runoff controls;
- Post-construction runoff controls; and
- Pollution prevention and municipal good housekeeping measures.

A SWPPP is a management plan that describes the MS4 permittee's activities for managing stormwater within their jurisdiction or regulated area. In the event a TMDL study has been completed, approved by EPA prior to the effective date of the general permit, and assigns a wasteload allocation to an MS4 permittee, that permittee must document the WLA in their application and provide an outline of the best management practices to be implemented in the current permit term to address any needed reduction in loading from a MS4 community.

The stormwater program requires construction and industrial sites to create a SWPPP that summarizes how stormwater will be minimized from a site. Permittees are required to review the adequacy of local SWPPPs to ensure that each plan meets WLA set in the Eagan Lakes watershed TMDLs. In the event that the SWPPP does not meet the WLA, the SWPPP will need to be modified prior to the effective date of the next General Permit. This applies to the MS4, Construction, and Industrial Stormwater General Permits.

The EIGWMO and local entities may apply for other funding provided by the State of Minnesota. These funding opportunities are grants under the Clean Water Legacy Act (CWLA) and funding through the Clean Water Partnership program. The EIGWMO may also explore the funding mechanisms provided through the federal Section 319 grant program which provides cost share dollars to implement voluntary activities in the watershed beyond those required by NPDES permits.

Clean Water Legacy Act: The CWLA was passed in Minnesota in 2006 for the purposes of protecting, restoring, and preserving Minnesota water. The CWLA provides the protocols and practices to be followed in order to protect, enhance, and restore water quality in Minnesota. The CWLA outlines how MPCA, public agencies and private entities should coordinate in their efforts toward improving land use management practices and water management. The CWLA anticipates that all agencies (i.e., MPCA, public agencies, local authorities and private entities, etc.) will cooperate regarding planning and restoration efforts. Cooperative efforts would likely include informal and formal agreements to jointly use technical, educational, and financial resources.

The CWLA also provides details on public and stakeholder participation, and how the funding will be used. In part to attain these goals, the CWLA requires MPCA to develop Watershed Restoration and Protection Strategies (WRAPS). The WRAPS are required to contain such elements as the identification of impaired waters, watershed modeling outputs, point and nonpoint sources, load reductions, etc. (Chapter 114D.26; CWLA). The WRAPS also contain an implementation table of strategies and actions that are capable of achieving the needed load reductions, for both point and nonpoint sources (Chapter 114D.26, Subd. 1(8); CWLA). Implementation plans developed for the TMDLs are included in the table, and are considered "priority areas" under the WRAPS process (Watershed Restoration and Protection Strategy Report Template, MPCA). This table includes not only needed actions but a timeline for

achieving water quality targets, the reductions needed from both point and nonpoint sources, the governmental units responsible, and interim milestones for achieving the actions. MPCA has developed guidance on what is required in the WRAPS (Watershed Restoration and Protection Strategy Report Template, MPCA)

The Minnesota Board of Soil and Water Resources administers the Clean Water Fund as well, and has developed a detailed grants policy explaining what is required to be eligible to receive Clean Water Fund money (FY 2014 Clean Water Fund Competitive Grants Request for Proposal (RFP); Minnesota Board of Soil and Water Resources, 2014).

The EPA finds that this criterion has been adequately addressed.

9. Monitoring Plan to Track TMDL Effectiveness

EPA's 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Comment:

The final TMDL document outlines the water monitoring efforts in the Eagan Lakes watershed (Section 4 of the TMDL). Water quality monitoring is a critical component of the adaptive management strategy employed as part of the implementation planning efforts for the Eagan Lakes watershed.

Follow-up monitoring is integral to the adaptive management approach. Monitoring addresses uncertainty in the efficacy of implementation actions and can provide assurance that implementation measures are succeeding in attaining water quality standards, as well as inform the ongoing TMDL implementation strategy. To assess progress toward meeting the phosphorus TMDL targets, routine monitoring of the lakes will continue to be a part of the City of Eagan annual monitoring program. The City of Eagan currently monitors lakes within the city on a biweekly basis (every two weeks), and plans on continuing this monitoring in the future (Section 6.4 of the TMDL; City of Eagan Water Quality and Wetland Management Plan, 2007).

The EPA finds that this criterion has been adequately addressed.

10. Implementation

EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that

other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.

Comment:

Implementation strategies are outlined in Section 5 and 6 of the TMDL. The MPCA presented a variety of possible implementation activities for each lake which could be undertaken within the Eagan Lakes watershed. The City of Eagan has had a long history of water quality protection for these lakes, dating back to the late 1980's. Recent reports include the "Water Quality and Wetland Management Plan" developed in 2007, and the "Stormwater Management Plan", which was revised in 2007.

Table 5.1 of the TMDL is a list of the potential capital projects (by watershed) to reduce phosphorus loads in the lakes, for both TMDLs and protection lakes. The table also includes estimated costs, annual phosphorus reductions, and cost efficiencies. MPCA also provided maps of the lake watersheds with the locations of the projects noted (Figures 5.2-5.7 of the TMDL).

Four of the lakes (Bald, Bur Oaks, Fitz, and LeMay) were identified as needing internal TP load controls (Section 5.4 of the TMDL). Sediment cores from each lake were analyzed to estimate the amount of alum needed to reduce phosphorus uptake from the sediments. Table 5.2 of the TMDL provides the current internal TP loads, estimated reductions from alum treatment, and an estimated cost.

MPCA also identified potential stormwater BMP projects that will reduce TP loads into the lakes. These detailed BMP projects include estimated TP reductions on an annual basis as well as a cost estimate (Section 5.7 and Appendix I of the TMDL). MPCA noted that this is a list of potential projects; the City of Eagan intends to use this study to inform implementation of their stormwater program (Watershed Management Plan- September 2015; Eagan-Inver Grove Heights Watershed Management Organization) .

The EPA finds that this criterion has been adequately addressed. The EPA reviews but does not approve implementation plans.

11. Public Participation

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2)).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

Comment:

The public participation section is found in Section 7 of the TMDL document. Throughout the development of the Eagan Lakes watershed TMDLs the public was given various opportunities to participate in the TMDL process. The MPCA and the City of Eagan held meetings with the public in March, 2013, December, 2013, and May, 2014. The goal of these meetings was to update these groups on the TMDL approach, to share Eagan Lakes watershed water quality monitoring data, and to solicit information related to implementation activities already underway within the watershed.

The draft TMDL was posted online by the MPCA at (<http://www.pca.state.mn.us/water/tmdl>). The 30-day public comment period began on April 20, 2015, and ended on May 19, 2015. The MPCA received one public comment and adequately addressed this comment. A comment letter was submitted by Dakota County. The county requested several minor clarifications, and had several suggestions on implementation activities. EPA believes that MPCA adequately addressed the comment and updated the final TMDL with appropriate language.

The EPA finds that the TMDL document submitted by the MPCA satisfies the requirements of this eleventh element.

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

Comment:

EPA received the final Eagan Lakes TMDL document, submittal letter and accompanying documentation from the MPCA on August 5, 2015. The transmittal letter explicitly stated that the final Eagan Lakes TMDLs for phosphorus were being submitted to EPA pursuant to Section 303(d) of the Clean Water Act for EPA review and approval. The letter clearly stated that this was a final TMDL submittal under Section 303(d) of CWA.

EPA also agrees that the protection measures outlined in the TMDL document for Bald Lake, Bur Oaks Lake, Cliff Lake, Hay Lake, LP-30 Lake, North Lake, O'Leary Lake, and Quigley Lake are sufficient to maintain the existing water quality in the lakes. EPA agrees these measures are appropriate for consideration as "protection strategies" as described in the "A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program".

The EPA finds that the TMDL transmittal letter submitted for the Eagan Lakes watershed by the MPCA satisfies the requirements of this twelfth element.

13. Conclusion

After a full and complete review, EPA finds that the TMDLs for the Eagan Lakes watershed for phosphorus satisfy all of the elements of approvable TMDLs. This approval is for **four TMDLs** (Carlson Lake, Fitz Lake, Holz Lake, and LeMay Lake), addressing 4 lakes for aquatic recreational use impairments due to phosphorus. EPA also recognizes that MPCA has addressed eight lakes (Bald Lake, Bur Oaks Lake, Cliff Lake, Hay Lake, LP-30 Lake, North Lake, O'Leary Lake, and Quigley Lake) under a protection strategy (Table 1 of this Decision Document).

EPA's approval of these TMDLs extends to the water bodies which are identified in Table 1 of this Decision Document with the exception of any portions of the water bodies that are within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove TMDLs for those waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.

