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**RE:** Task 3 Technical Memorandum (Final)

## 1.0 INTRODUCTION

The state of Wisconsin in 2010<sup>1</sup> promulgated instream/in-lake phosphorus standards to address water quality needs associated with nutrient impairments to ultimately reduce adverse impacts of excess phosphorus in Wisconsin's waterways. Standards adoption has resulted in more restrictive WPDES permit limits being issued to municipal and industrial dischargers. Recognizing the burden on dischargers to meet new phosphorus discharge limits, Wisconsin DNR developed guidance for implementing options other than exclusively relying on wastewater treatment upgrades at regulated facilities. These include two compliance options (i.e., water quality trading (WQT) and adaptive management (AM) programs), and a multi-discharger variance (MDV) program to implement phosphorus reductions (referred to collectively as the P reduction programs). Newtrient, LLC recognized the need and opportunity for the dairy industry to support these P reduction programs given the substantial dairy footprint in Wisconsin. Recognition of the need for facilitating P reduction program implementation led Newtrient to identify the potential utility of a clearinghouse operation. As such, Newtrient contracted Kieser & Associates, LLC (K&A) to assess options derived from other clearinghouse efforts as they might apply in Wisconsin to facilitate participation in these P reduction programs.

This memorandum is the third in a series of three that serves as the culmination of K&A clearinghouse analyses for Newtrient. The Task 1 technical memorandum provided an evaluation of several existing clearinghouses used in WQT programs of North America (K&A 2018a). The Task 2 memorandum summarized WQT, AM, and MDV efforts to date in Wisconsin to address P reduction requirements (K&A 2018b). This second memorandum also identified ways in which a clearinghouse could facilitate the success of these programs. The objectives and structure of this Task 3 memorandum are outlined as follows.

### 1.1 Objectives and Format

The objective of the current memorandum is to use information from Tasks 1 and 2 to develop a range of options for a new clearinghouse structure in Wisconsin. The overall goal of this series of technical memoranda is to support initial recommendations for a clearinghouse structure that can efficiently increase the level of engagement by point and nonpoint phosphorus (P) sources in Wisconsin's P reduction programs.

<sup>1</sup> <https://dnr.wi.gov/topic/surfacewater/phosphorus/> accessed 12/13/18

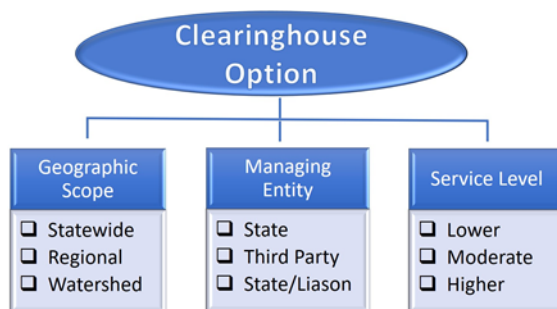
In this current document, relevant observations from the first two memos are synthesized, and some additional detail on the Wisconsin P reduction programs and existing clearinghouses is provided. Several important considerations that may shape options for a Wisconsin clearinghouse are identified and discussed. In addition, a process for identifying and evaluating clearinghouse options based on these considerations is presented. Three options are outlined for consideration by Newtrient, covering lower, moderate, and higher levels of complexity and investment of resources. The evaluation of clearinghouse options assumes that an important clearinghouse goal is to facilitate all three P reduction programs (WQT, AM, and MDV). Important differences and similarities among these programs are considered in order for a clearinghouse to achieve the successful implementation of all three.

This memorandum is therefore divided into the following sections:

- Conceptual approach and key factors for identifying clearinghouse options (Section 2);
- Identification of common tasks found across P reduction programs and existing clearinghouses (Section 3);
- Characterization of the geographic scope of P reduction needs and eligibility requirements in Wisconsin (Section 4);
- Synthesis of information in Sections 2-4 into a detailed presentation of three clearinghouse options for consideration by Newtrient (Section 5).

## **2.0 CONCEPTUAL APPROACH AND KEY FACTORS USED TO DEVELOP CLEARINGHOUSE OPTIONS**

The approach taken to develop clearinghouse options focused on the development of a generalized conceptual model reflecting primary factors and associated considerations relevant to clearinghouse development in Wisconsin. Key factors considered for this analysis and relevant sub-factors reflecting different organizational structure and degrees of complexity were identified (refer to Figure 1).



**Figure 1.** Conceptual Model, with Hypothetical Example of Key Considerations in Evaluating Clearinghouse Options.

These are examined in the context of the P reduction programs in formulating recommended Wisconsin clearinghouse approach options in this K&A analysis.

### **2.1 Major Clearinghouse Components**

The three primary components considered in the K&A analysis included the geographic scope of a clearinghouse operation, the entity (or entities) involved in the operation and management of the clearinghouse, and the level of services provided for facilitating Wisconsin's P reduction programs. These major factors as defined here.

### ***2.1.1 Geographic Scope***

Geographic scope refers to the spatial coverage of the clearinghouse, i.e., the region in which it facilitates P reduction program transactions. Three relevant considerations for geographic scope include statewide, regional, and watershed-level application. The statewide geographic scope infers a single clearinghouse organization or entity that is able to facilitate the range of P reduction programs across the state and across all watersheds. Alternatively, a watershed geographic scope refers to a clearinghouse that operates only within a defined watershed. Facilitating P reduction programs for multiple watersheds would then require multiple clearinghouses. The regional scope alternative represents the intermediate case in which a separate clearinghouse may operate within specific regions of the state that may have boundaries covering multiple adjacent watersheds. The regional scope could also reflect regional boundaries that exist for other programmatic reasons important in Wisconsin. These could reflect major watersheds (the Great Lakes Basin and the Mississippi River Basin), predominant physical geographies, agricultural production regions (cropping regions versus those with substantial dairy interests) or rural versus urbanized regions. Because the distribution of the water quality concern being addressed by a clearinghouse is an important consideration in the selection of the geographic scope of the clearinghouse, Section 4 of this memorandum provides an assessment of the distribution of phosphorus concerns in Wisconsin.

Based on recent K&A discussions with Newtrient, only the statewide geographic application is considered in this analysis, given the current state of deliberations with Wisconsin DNR and state legislative interests. This does not necessarily preclude other geographic considerations as clearinghouse interests are refined in ongoing deliberations; rather, it simply narrows the discussion in this memorandum to more succinctly focus on other major factors such as managing entities and levels of service that might be provided by a statewide clearinghouse.

### ***2.1.2 Managing Entity***

State, third party, state/liaison alternatives are identified for the managing entity factor. These alternatives generally reflect a range of clearinghouse structures that exist along a continuum rather than having clear organizational boundaries that define each alternative. For example, a state managing entity refers to a clearinghouse in which a majority, if not all, clearinghouse functions occur within the purview of a state agency and are carried out by agency staff. Alternatively, an example of a third-party managing entity is a clearinghouse that may be authorized by state legislation but largely implements P reduction programs independently with separate staff according to state agency guidelines. A state/liaison alternative describes a clearinghouse that operates as a separate entity from the state, but has a strong working relationship with state agency personnel charged with implementing P reduction programs. In this case, the separate clearinghouse entity provides a service to agency staff designed to maximize the effectiveness of agency programs.

### ***2.1.3 Service Level***

This consideration refers to the range of functions that the clearinghouse provides. The K&A Task 1 technical memorandum described a wide range of actions carried out by several existing clearinghouses including administrative, market-related, pricing, and other functions. The Task 2 memorandum identified requirements of the WQT, AM, and MDV programs in Wisconsin reflecting the actions that must be completed for successful implementation of these programs. Information from both tasks yields a broad set or “menu” of functions that a clearinghouse may or may not provide depending on the objectives and resources of the clearinghouse. Thus, different levels within this factor represent alternative sets of clearinghouse services, with the “higher” sub-factor alternative referring to a clearinghouse that offers the

most complete set of services to broadly implement the majority of P reduction program requirements for buyers and sellers in these applications. The “lower” alternative reflects the fewest service offerings that might simply help facilitate buyers and sellers with standardized forms and related submission automation, brokering to connect entities, and an online registry to record transactions.

The level of service provided by the clearinghouse can be expected to affect its start-up and maintenance costs, but also may have implications for the success of a clearinghouse with respect to facilitating the implementation of P reduction programs. Careful selection of clearinghouse services therefore will likely influence the cost-effectiveness of a clearinghouse. Such considerations are discussed herein.

### **3.0 IDENTIFYING COMMON TASKS ACROSS WISCONSIN P REDUCTION PROGRAMS AND EXISTING CLEARINGHOUSES**

The Task 1 and Task 2 K&A memoranda each provided important information on the levels of service that 1) are consistent with clearinghouse entities (i.e., where existing clearinghouses provide examples and/or precedent for offering a service), and 2) would be needed to facilitate Wisconsin’s P reduction programs, respectively. Clearinghouses and related regulatory drivers in other settings evolved independently and therefore tend to use varying terminology to describe functions, characteristics, and requirements of each program. Thus, an important step in defining clearinghouse service levels, for example, involves combining information from these previous analyses into common terminology to capture the general nature of the function being provided. This section of the Task 3 memorandum is intended to provide a clearly defined range of tasks that a clearinghouse may choose to take on, which in turn defines the characteristics of a clearinghouse option under the “service level” sub-factor.

The remainder of this section presents information on:

- General descriptions of common tasks between Wisconsin P reduction programs and clearinghouses
- Supplemental services that may be provided by clearinghouses to enhance P reduction programs, and
- Roles of DNR staff in P reduction programs as these relate to clearinghouse considerations

#### **3.1 General Descriptions of Common Tasks**

A list of common tasks across Wisconsin’s P reduction programs and existing clearinghouse structures is provided in Table 1. In the first column of this table are those common tasks that require and/or provide similar functions across Wisconsin reduction programs and clearinghouse functions. Descriptions of these particular tasks are provided in the text box. In addition, the general type of capability required to provide the function or service is also shown in the table. These would include overall program coordination, program administration, and/or technical, legal, or financial services. For example, initial paperwork is required to enter a Wisconsin P reduction program; a function commonly facilitated by the existing clearinghouses. This service requires capabilities that can generally be characterized as administrative in nature, though other technical capabilities (e.g., data analysis, computer modeling) may be required to complete the required paperwork. Other task descriptions in Table 1 address aspects such as finding point and nonpoint source partners, finding or operating as brokers or exchanges, conducting watershed analyses and P loss reduction calculations, facilitating financial and legal arrangements, creating registries and markets, and others.

This material is based upon work supported by the Natural Resources Conservation Service, U.S. Department of Agriculture, under cooperative agreement number 68-3A75-18-109

**Table 1.** Common Tasks Specified in Wisconsin P Reduction Programs and Compared with Attributes of Existing Clearinghouses.

Wisconsin Phosphorus Reduction Programs						Existing Clearinghouses from Task 1 Memorandum							
Task Description	Capabilities	WQT	AM	MDV (county)	MDV (3rd party)	Long Island Sound	Lake Simcoe P Offset Program	PENNVEST	South Nation Total P Mgmt Program	VA Nutrient Credit Exchange	Grt Miami Rvr Watershed Trading Pilot	CO Water Quality Control Commission	NC Nutrient Offsets and Trading
Complete application forms	Administrative	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	nd	Y
Find partners/ credit generators/ P load reducers	Coordination, Administrative	Y	Y	Y	Y	Y	nd	Y	Y	Y	Y	nd	Y
Find brokers/ exchange	Coordination, Administrative	Y	na	na	na	Y	nd	Y	Y	Y	Y	N	N
Conduct watershed analyses	Technical (data acquisition/analysis, modeling, GIS)	Y	Y	Y	Y	Y	nd	N	N	Y	N	N	N
Estimate P reductions	Technical (data acquisition/analysis, modeling, GIS)	Y	Y	Y	Y	N	Y	Y	nd	Y	Y	N	Y
Complete pollutant reduction planning document	Administrative, Coordination, Technical (data acquisition/analysis, modeling, GIS)	Y	Y	Y	Y	N	nd	N	N	N	N	N	N
Establish legal/ financial arrangements	Legal, Finance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Register practices/credits	Administrative	Y	Y	Y	Y	Y	Y	Y	N	nd	nd	nd	Y
Verify practices/credits	Technical	Y	Y	Y	Y	nd	Y	Y	N	N <sup>a</sup>	Y <sup>b</sup>	Y	N <sup>a</sup>
Complete required documentation/ annual reports	Administrative, Technical	Y	Y	Y	Y	Y	Y	Y	nd	Y	Y	nd	nd

<sup>a</sup> State verifies. <sup>b</sup> Additionally, a portion of practices are verified by the state. na = not applicable. nd = not determined, i.e., relevant information was not found.

### 3.2 Description of Supplemental Services

Services that provide value to permittees but are not specifically required for participation in Wisconsin's P reduction programs are referred to herein as "supplemental services." These appear in Table 2. Supplemental services may provide incentives for permittees to participate in phosphorus reduction programs. These may especially reduce both regulatory and financial uncertainty associated with the default on water quality credits due to credit generating project failure under WQT. Discussed further in Section 5 of this memorandum, Table 2 contemplates "Permit Compliance Certainty for Project Failure" and "Financial Risk Management for Project Failure." The former refers to a service that could provide permittees participating in Wisconsin's P reduction programs a reliable mechanism or option for maintaining a permit if a phosphorus reduction crediting project fails. In the WQT context, this service can generally be provided by offering permittees access to an insurance pool of credits that can be purchased by the clearinghouse to rectify project failure. This service can also be provided in a multi-discharge variance setting for permittees self-implementing or using a third-party project developer. With modification, this service may potentially extend to counties that fall behind on their MDV county watershed plans. "Financial Risk Management for Project Failure" refers to an option where the clearinghouse could mitigate a permittee's financial liability for replacing credits that have defaulted due to project failure. This can be accomplished by transferring financial liability from the permittee to another entity through legal and financial arrangements. These could be aggregators, for example, that might bundle credits from several farmers and sell the credits to the clearinghouse.

#### Descriptions of Common Tasks from Table 1

**Complete application forms:** Refers to completion of initial paperwork, application forms, etc. to begin participation in a program. In Wisconsin, a "Notice of Intent to Conduct Water Quality Trading" is completed and submitted to WDNR for review and approval to use WQT as a compliance option.

**Find partners/credit generators/P load reducers:** For all Wisconsin phosphorus reduction programs, there is a need to identify willing partners, particularly those able to implement phosphorus reduction practices, thus generating credits (WQT), leading to attainment of water quality criteria (AM), or establishing priority areas for P reduction (MDV).

**Find brokers/exchange:** Applies to trading only where a broker is defined as a third party that connects eligible credit users with appropriate credit generators. An exchange is an entity that acquires pollutant reduction credits to sell to credit users.

**Conduct watershed analyses, estimate pollutant reductions:** Refers to a DNR requirement to understand watersheds, particularly regarding relevant pollutant sources, loadings, and load reductions associated with implementation of load reduction practices.

**Estimate P Reduction:** Refers to the quantification and estimation of the phosphorus load reduction attributed to a nonpoint source phosphorus reduction generating project or practice(s). Phosphorus load reductions are generally analyzed through the use of empirical and mechanistic models.

**Complete a pollutant reduction planning document:** Refers to a Wisconsin requirement to produce a written planning document that includes analysis of watershed characteristics, pollutant sources, pollutant load reductions, etc. such as the Wisconsin trading plan (WQT), adaptive management plan (AM), and watershed plan (MDV).

**Establish legal and/or financial arrangements:** For the Wisconsin programs, this task refers to such things as trading agreements among partners (WQT), a written statement to WDNR that AM financial needs are feasible (AM), and binding, written agreements for self-directed/third party MDV projects.

**Registering/tracking practices/credits:** Refers to the use of registries or other project documentation mechanisms to facilitate project tracking. Examples include management practice registration and the WDNR trade registration form (WQT), or information provided in required annual reporting (AM, MDV).

**Verify practices/credits:** Refers to steps taken to ensure that planned practices are being implemented, including providing information in annual reports (WQT, AM, and MDV).

**Complete required documentation, annual reporting:** All Wisconsin programs require annual reports to assist WDNR in ensuring that program requirements are being met.

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**Table 2.** Comparison of Supplemental Clearinghouse Services in Wisconsin P Reduction Programs with Attributes of Existing Clearinghouses

Wisconsin Phosphorus Reduction Programs						Existing Clearinghouses from Task 1 Memorandum							
Task Description	Capabilities	WQT	AM	MDV (county)	MDV (3rd party)	Long Island Sound	Lake Simcoe P Offset Program	PENNVEST	South Nation Total P Mgmt Program	VA Nutrient Credit Exchange	Grt Miami Rvr Watershed Trading Pilot	CO Water Quality Control Commission	NC Nutrient Offsets and Trading
Permit Compliance Certainty for Project Failure	Legal	N	N	N	N	Y	Y	Y	N	nd	Y	nd	nd
Financial Risk Management for Project Failure	Finance, Legal	N	N	N	N	N	N	N	N	N	N	N	N

nd = not determined, i.e., relevant information was not found.



### **3.3 Role of WDNR Staff in Current P Reduction Programs**

Wisconsin DNR staff currently address several elements of P reduction program implementation as shown in Table 3. Within the WQT program, in addition to other permit-related interactions, WDNR staff provide permittees with assistance in the initial evaluation of WQT as a potential compliance option, track the use of credits, review and approve related documentation, and occasionally inspect implementation of projects used in compliance trades. For the AM program, WDNR staff also provide some technical assistance to calculate nonpoint source (NPS) load contributions and identify appropriate agricultural management practices. Several additional roles that are more specific to MDV are also carried out by WDNR staff, such as reviewing economic impacts of treatment technology installation, and conducting a “highest attainable condition” analysis.

A careful review of both Table 1 and Table 3 should help in the selection of functions provided by a clearinghouse to achieve the most cost-effective outcomes in Wisconsin. In addition, the information in these tables show which common tasks are currently not provided by WDNR staff. This informs future discussions about roles that may be transferred in part or whole from Wisconsin staff to a new clearinghouse entity to benefit program implementation. For example, a clearinghouse could “aid the permittee in evaluating trading as a compliance option” (Table 3), reducing a portion of WDNR staff time spent on this task. This may be especially important as interest in WQT increases in Wisconsin. Tracking the use of credits, a role currently filled by WDNR staff, is another task that a clearinghouse could support.

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**Table 3.** DNR Staff Roles in All Three P Reduction Programs Based on Information Contained in Related Guidance Documents.

<b>Water Quality Trading<sup>a</sup></b>	<b>Adaptive Management<sup>b</sup></b>	<b>Multi-Discharger Variance<sup>c</sup></b>
Review trading plan and annual reports	Evaluate AM request forms and annual reports	Review watershed projects and annual reports
Answer questions and provide technical feedback	Answer questions and provide technical feedback	Grant compliance schedule to WPDES permit holder not currently in compliance with proposed interim limitation if needed
Implement permit requirements consistently	Implement permit requirements consistently	Have and will continue to assist counties with plan development and, when requested, review plans for consistency with the 9 Key Elements <sup>d</sup>
Provide permittee with water quality-based effluent limits (WQBELs)	Calculate WQBELs for each facility	Provide MDV plan number to permittees as part of its tracking system
Aid permittee in evaluating trading as a compliance option	Calculate nonpoint source contributions	Take action within 30 days of receiving the MDV application
Issue, reissue, or modify the WPDES permit to allow trading	Assist with identifying appropriate agricultural management practices	Review substantial and widespread determination based on technological improvements or economic changes
Evaluate compliance with WQBELs	Work with partners to access SWIMS database	Review highest attainable condition analysis
Track use of credits		Evaluate site-specific highest attainable condition
Address noncompliance		Update MDV implementation guidance
On occasion, inspect sites that generate credits and audit third parties that serve as site inspectors		

<sup>a</sup> Sources: WDNR (2013 a, 2013c). <sup>b</sup> Source: WDNR (2013b). <sup>c</sup> Source: WDNR (2017). <sup>d</sup> See <https://dnr.wi.gov/topic/nonpoint/9keyelementplans.html>

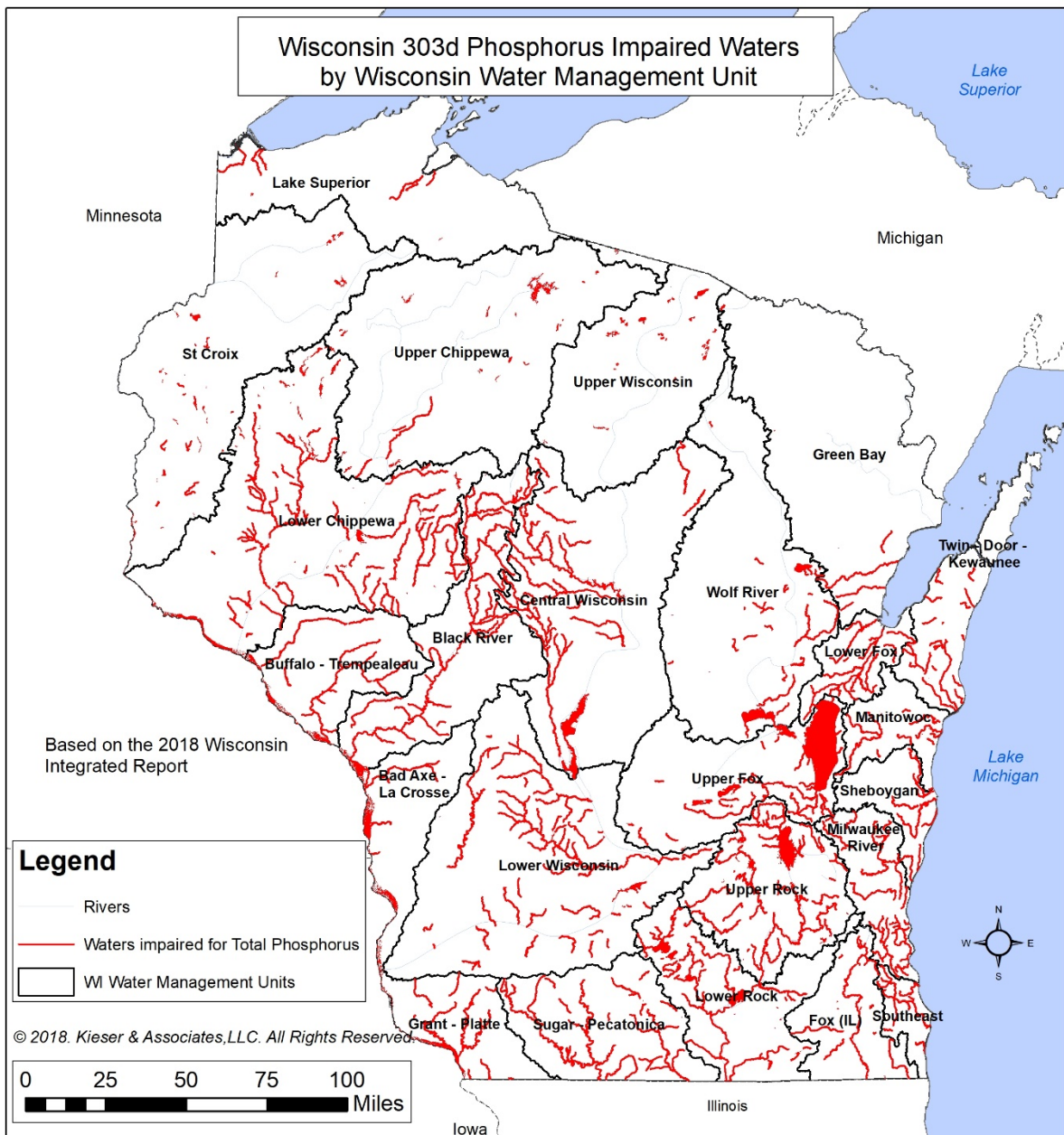
#### **4.0 GEOGRAPHIC SCOPE OF P REDUCTION NEEDS AND PROGRAM ELIGIBILITY REQUIREMENTS**

An important aspect of identifying an appropriate geographic scope for a clearinghouse is the distribution of current and future P reduction needs and efforts within the state. For example, for other clearinghouses in North America where nutrient reduction was only required in a specific watershed (e.g., Great Miami River in Ohio), a clearinghouse with a watershed geographic scope was most appropriate. Where concerns over excess phosphorus are statewide, a single statewide clearinghouse may be most appropriate. This section briefly reviews existing information on the distribution of excess P and related concerns/activities in Wisconsin. Eligibility requirements for participation in each program also are addressed.

#### **4.1 Phosphorus Impairments and Total Maximum Daily Load Studies**

As part of its authorization to implement the Clean Water Act in Wisconsin, WDNR conducts water quality assessments and produces a report (referred to as the Integrated Report, IR) every two years on the condition of the state's waters. This report identifies waters that do not attain water quality standards and the pollutants causing the impaired condition. Waters that require a total maximum daily load (TMDL) study also are identified. Figure 2 shows the locations of phosphorus-impaired rivers and lakes identified in the 2018 IR. This figure was generated using information obtained from the WDNR GIS Open Data Portal (<https://data-wi-dnr.opendata.arcgis.com/>). Results show that phosphorus-impaired rivers and lakes are found in many parts of Wisconsin, especially in the more agricultural southern two-thirds of the state. Some phosphorus-impaired waters also exist in the northern portions of the state, including in the Lake Superior basin. Impairment listings (where total phosphorus is identified as the causal pollutant in the 2018 Integrated Report) include 304,328 lake acres, 71,429 impoundment acres, and 6,577 river miles in Wisconsin (WDNR 2018).

Information regarding the status of TMDL development in relation to phosphorus impairments is provided in Table 4. These data were obtained from WDNR Impaired waters website (<https://dnr.wi.gov/water/tmdlSearch.aspx>). Twenty-eight different TMDLs involving phosphorus are listed. Six have TMDLs that are currently being developed, including the Upper Fox River and the Wisconsin River. In the remaining locations, approved TMDLs are actively being implemented. These include the Lower Fox River and the Milwaukee River. Each of these TMDLs may represent additional opportunities for the WQT and/or AM programs to be implemented, in addition to the existing WQT, AM, and MDV projects reported in the Task 2 technical memorandum (K&A 2018b, Figure 1).



**Figure 2.** Locations of Phosphorus-Impaired Waters in Wisconsin Based on Mapping Associated with the Wisconsin DNR 2018 Integrated Report (WDNR 2018).

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**Table 4.** Status of TMDLs Involving Phosphorus Based on Information in the WDNR 2018 Integrated Report (WDNR 2018).

<b>TMDL Plan Name</b>	<b>TMDL Being Implemented</b>	<b>TMDL Being Developed</b>
Big Eau Pleine TMDL		X
Carpenter Creek (Waushara Co) TMDL	X	
Castle Rock and Gunderson Creek TMDL	X	
Cedar Creek and Milwaukee River TMDL	X	
Eagle Creek and Joos Valley Creek TMDL	X	
Gills Coulee Creek TMDL	X	
Half Moon Lake TMDL	X	
Halfmoon Lake TMDL	X	
Hardies Creek TMDL	X	
Jordan Creek EAP Project	X	
Lake Mallalieu TMDL		X
Lake St. Croix TMDL	X	
Lower Fox River TMDL	X	
Martin Branch, Martinville Creek, and Rogers Branch TMDLs	X	
Mead Lake TMDL	X	
Middle Trempealeau TMDL	X	
Mill Creek TMDL		X
Milwaukee River TMDL	X	
Parsons Creek TMDL	X	
Rock River Recovery	X	
Saint Louis River TMDL		X
Squaw Lake TMDL	X	
Sugar Honey Creeks TMDL	X	
Sugar Pecatonica Basin TMDL	X	
Tainter Lake, Lake Menomin TMDL	X	
Upper Fox - Wolf TMDL		X
Waumandee TMDL	X	
Wisconsin River TMDL		X

#### **4.2 WQT, AM, and MDV Program Eligibility Considerations**

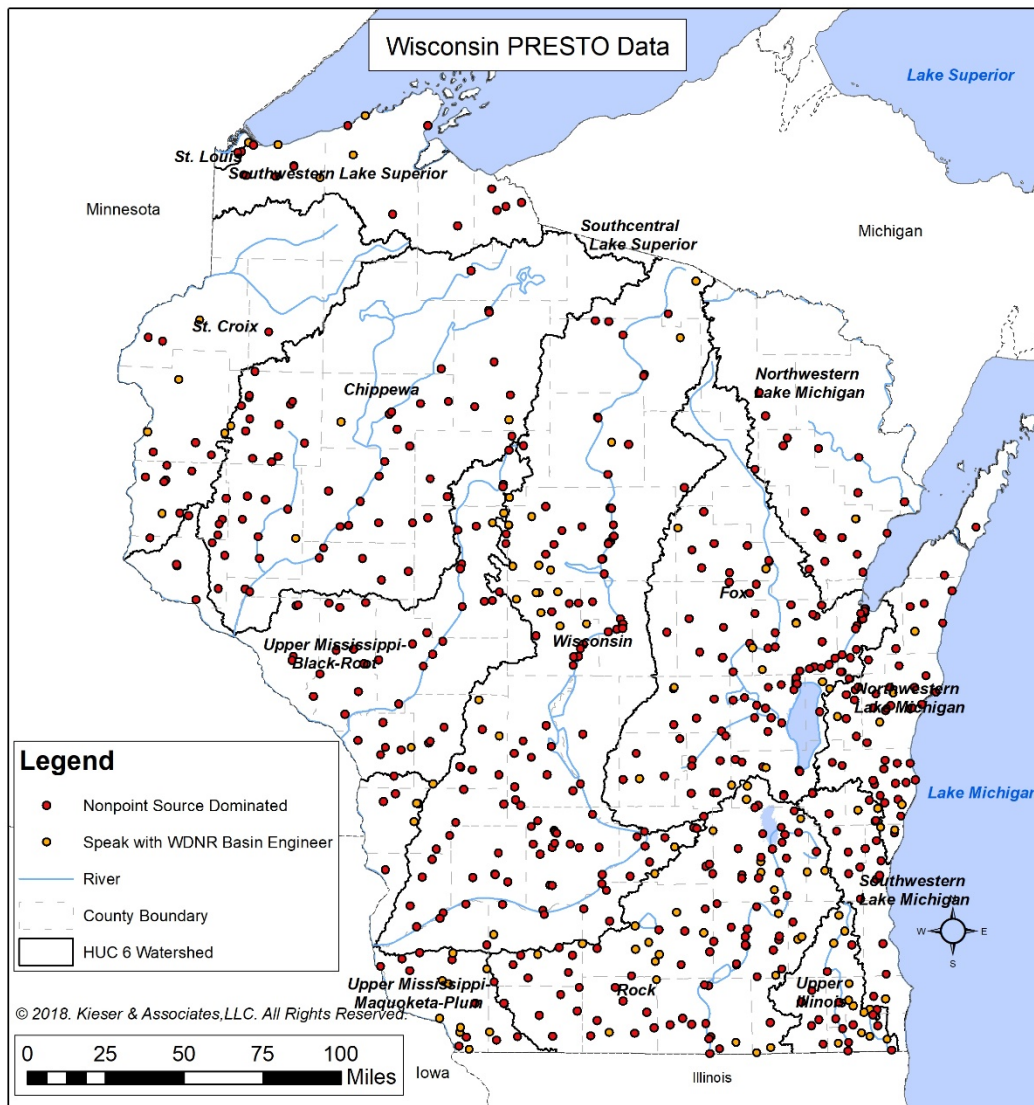
Other considerations that may affect the geographic scope of a clearinghouse include the eligibility requirements for participating in Wisconsin’s P reduction programs. Table 5 shows several of these requirements. A detailed analysis of how eligibility affects the potential number of participants in WDNR’s P reduction programs is beyond the scope of this memorandum, but the table illustrates that eligibility may require further consideration.

**Table 5.** Eligibility Requirements for Participation in Wisconsin Programs.

<b>Requirement</b>	<b>WQT</b>	<b>MDV</b>	<b>AM</b>	<b>References</b>
Water quality-based effluent limit (WQBEL) calculated?	X	X	X	WQT How-to page 18; MDV Guidance page 11; AM Guidance page 12
Does WQBEL exceed the applicable criterion for receiving water?	X		X	WQT How-to page 21; AM Guidance page 12
Is permittee in a nonpoint source dominated watershed which must be controlled to meet water quality goals?	X		X	MDV Guidance page 20; AM Guidance page 12
Does permittee watershed need to have approved TMDL?	X		X	WQT How-to page 20; AM Guidance page 12
Phosphorus criterion is not being met?			X	AM Guidance page 80
Is the facility subject to total maximum daily load (TMDL)-derived limit?	X	X	X	MDV Guidance page 12; AM Guidance page 12
Filtration or equivalent technology upgrade required to meet the proposed/new P limit?	X	X	X	MDV Guidance page 17; AM Guidance page 12
NPS contribute at least 50% of total P entering the receiving water?			X	AM Guidance page 82
Willing to work with/have identified partners in watershed to improve water quality?	X		X	WQT How-to page 24; AM Guidance page 24
Is permittee located in MDV eligible area?		X		MDV Guidance page 17 and App. H page 91
Based on data, is estimated per-customer cost at least 2% of MHI and does it meet at least two secondary indicator points?		X		MDV Guidance page 20
For municipalities, based on data, is estimated per-customer cost at least 1- 2% of MHI and does it meet at least three secondary indicator points?		X		MDV Guidance page 20 and App. A-F pages 70-87
Is industrial permittee facility within top 75% of permittee incurring costs and is permittee discharge in county within top 75% of county incurring costs and does it meet secondary score of at least 2-3?		X		MDV Guidance App. G page 88

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One eligibility criterion for participation in the AM program is for a permittee to be located in nonpoint source-dominated waters (locations where greater than 50% of the total phosphorus load entering a receiving water upstream of the permittee is from nonpoint sources). WDNR has developed a calculation tool called the Pollutant Load Ratio Estimation Tool, and has used the tool to calculate this ratio for over 600 permittees (WDNR 2013b). Wisconsin PRESTO data were obtained from the Wisconsin DNR Pollutant Load Ratio Estimation Tool webpage at <https://dnr.wi.gov/topic/surfacewater/presto.html>, and are plotted in Figure 3. Results show that a majority of permittees are located in NPS-dominated watersheds, and they are widely distributed around the state in a pattern similar to the distribution of P-impaired waters. Thus, the requirement for being in an NPS-dominated watershed does not appear to further limit the potential geographic scope of a clearinghouse.



**Figure 3.** Locations of Permittees for which Upstream P Loads Are Dominated by Nonpoint Sources (an Eligibility Requirement for AM) (Mapped Using WDNR PRESTO Results).

## **5.0 DEVELOPMENT OF THREE CLEARINGHOUSE OPTIONS**

This section develops information on the major clearinghouse factors, i.e., geographic scope, managing entity, and level of service (Sections 5.1, 5.2, and 5.3, respectively) leading to the presentation of three clearinghouse options that consider these factors with select sub-factors. Elements of the Wisconsin P reduction programs and existing clearinghouses are integrated into options with varying levels of clearinghouse sophistication. These represent lower, moderate, and higher levels of sophistication with forecasts on new investments of time and resources needed to implement each option. Pros and cons, as well as potential costs, are included in the narratives for each element of the options presented. Though there could be several permutations for clearinghouses in Wisconsin, this memorandum narrows these to options under a statewide clearinghouse.

### **5.1 Geographic Scope**

The three options considered within the geographic scope factor include statewide, regional, and watershed-specific, as discussed below.

#### **5.1.1 Statewide Clearinghouse**

##### *5.1.1.1. Description and Examples/Precedence*

A statewide clearinghouse would facilitate phosphorus reduction programs across all watersheds. At a minimum, this would require that watersheds throughout the state follow the same program rules accomplished through statewide policies and guidance. A statewide clearinghouse was not previously identified in the K&A Task 1 memorandum; examples operated at either multi-watershed (e.g., Pennsylvania and Virginia for the Chesapeake Bay) or single watershed levels (e.g., the Lake Simcoe, Ontario and Great Miami River of Ohio). It is, however, notable that statewide clearinghouses were not likely viable options at the time of implementation as water quality programs were principally watershed-based when clearinghouses were developed and implemented around these specific geographic applications. No examples of other clearinghouses were associated with reduction programs driven by a statewide phosphorus standard as noted in Wisconsin.

##### *5.1.1.2 Pros/Cons*

#### ***PRO: May Be the Most Cost-Effective Option, Avoiding the Need for Multiple Clearinghouses.***

In Wisconsin, because the P reduction needs encompass a number of the state's largest watersheds and are found over a large portion of the state, a single, statewide clearinghouse may provide the best opportunity for minimizing total costs associated with clearinghouse start-up and maintenance. Developing multiple regional or watershed clearinghouses would likely yield duplicative clearinghouse services that could be streamlined with a single clearinghouse.

#### ***PRO: Improves P Reduction Program Implementation Consistency Throughout the State.***

A single clearinghouse that can address P reduction program needs throughout the state is likely to provide greater consistency in how services are provided to program participants in all watersheds. Selecting a watershed clearinghouse scope, for example, would mean establishing multiple clearinghouses, each with differing personnel and potentially different procedures and capabilities.

#### ***CON: May Be More Challenging to Find Program Partners.***

A potential negative for a statewide clearinghouse option is that it may be more difficult to develop valuable watershed- or region-specific information and partnerships that could facilitate use of WQT,



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AM, and MDV programs. The establishment of consistent, long-term clearinghouse staff could help alleviate this concern.

### **5.1.2 Regional Clearinghouse**

#### *5.1.2.1 Description and Examples/Precedence*

A regional clearinghouse is designed to operate and manage phosphorus programs within several targeted HUC6 or HUC8 watersheds. Clearinghouses designed to operate across multiple HUC6s or HUC8s, including PENNVEST and the Virginia Nutrient Credit Exchange, were developed to address expansive nutrient reduction strategies and TMDLs. In response to the Chesapeake Bay Tributaries Strategies and later the Chesapeake Bay TMDL, both Pennsylvania and Virginia authorized the use of water quality trading in the Chesapeake Bay and its tributaries. Pennsylvania authorized WQT and the PENNVEST clearinghouse for HUC6 basins recognized in the Chesapeake Bay TMDL including the Susquehanna, which covers half of the state, and the Potomac Basins. Under the same TMDL, Virginia authorized WQT and their Virginia Nutrient Credit Exchange for multiple HUC6s and HUC8s including the Potomac, Rappahannock, York, James River Basin, and the entire Eastern Shore of Virginia. As noted above, these clearinghouses arose from regional water quality needs, not ubiquitous statewide nutrient standards.

#### *5.1.2.2 Pros/Cons*

***PRO: May Be Able to Maximize the Use of Regional-Scale Resources and Partnerships.***

Currently, WDNR maintains regional personnel that have expertise in region-specific characteristics, stakeholders, and resources as well as in all P reduction programs. A regional clearinghouse may more easily make use of this expertise, developing stronger relationships with WDNR staff and other important stakeholders.

***CON: Would Require Multiple Clearinghouses.***

Because multiple clearinghouses would be needed, the cost-efficiencies of a statewide option would not be realized.

### **5.1.3 Watershed-Level Clearinghouse**

#### *5.1.3.1 Description and Examples/Precedence*

A watershed-level clearinghouse is designed to operate and manage phosphorus programs within a single HUC6 or HUC8 watershed. These types of clearinghouses have typically been utilized to facilitate water quality trading designed and authorized to address impairments for a specific watershed. The majority of clearinghouses identified in the previous Task 1 and Task 2 documents operate within the bounds of a single HUC- or HUC8-sized watershed including the Long Island Sound, Lake Simcoe Phosphorus Offset Program, South Nation Total Phosphorus Management Program, and Great Miami River Watershed Trading Pilot.

#### *5.1.3.2 Pros/Cons*

***PRO: Availability of Local Resources***

Watershed-level clearinghouses focused on a single impaired watershed may benefit from the ability to leverage existing local resources. This may include both material resources as well as local partners that can facilitate the clearinghouse in provide services. A targeted watershed with an existing TMDL may benefit from availability of existing watershed data used to determine TMDLs. Additionally, local

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conservation districts will be more inclined to provide some services of the clearinghouse if the services directly benefit their local watershed. A clearinghouse with a larger service area may not attach to the same local partnerships.

***CON: Would Require Multiple Clearinghouses.***

As is the case for the regional clearinghouse option, the cost-efficiencies of a statewide option would not be realized because multiple clearinghouses would be needed.

## **5.2 Managing Entity**

### **5.2.1 State Agency**

#### *5.2.1.1 Description and Examples/Precedence*

A clearinghouse managed by a state agency provides services within the purview and authority of the state agency and operates with agency staff. Clearinghouses with a state agency as the managing entity often serve to consolidate the state agency's existing support and resources dedicated to facilitating nutrient reduction programs to provide more efficiency in delivering these services. Examples of state agencies serving as the managing entity of a clearinghouse are PENNVEST (Pennsylvania) and the Tar-Pamlico Nutrient Trading (North Carolina). Both of these clearinghouses were authorized and established through state legislation.

#### *5.2.1.2 Pros/Cons*

***PRO: Certainty of Regulatory Credibility for Permittees and Generators***

In the absence of effective outreach and education, an obstacle that potential participants may experience when approaching a clearinghouse is confusion over the regulatory credibility of the entity. A clearinghouse operated by a state agency provides certainty to permittees and generators that the services and arrangements provided by the clearinghouse are legitimate and recognized by the state agency.

***PRO: Authorization to Modify State Policies/Programs for Clearinghouse Integration***

Clearinghouses managed by a state agency benefit from having the authorization to make modifications to water quality programs as needed. As an extension of a government agency, clearinghouses run by a state agency would have fewer obstacles in identifying and making adjustments to state policies and programs that may be required to facilitate clearinghouse administrative processes.

***CON: Limitation in Capacity and Resources to Provide the Range of Clearinghouse Services***

Although a state agency-run clearinghouse may have the authorization to perform all clearinghouse services, more sophisticated clearinghouses require both a wide range of expertise and capacity to establish and execute the clearinghouse. The development of a marketplace and registry requires specific expertise and staffing time that may not be readily available with state agency resources. Specific skills and expertise required to sufficiently provide clearinghouse services are summarized in Table 6.

### **5.2.2 State Agency with Assistance from Liaison Entities**

#### *5.2.2.1 Description and Examples/Precedence*

Clearinghouses may be managed through a working relationship between state agency personnel charged with implementing water quality programs and non-state agency entities. These types of clearinghouses

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may result from a desire to include stakeholders in clearinghouse processes, or efforts to bolster the expertise and capacity of the state agency to provide clearinghouse services.

In some instances, clearinghouses have been managed through a committee with joint membership between state agency staff and other stakeholders that represent the interests of the permittees and agricultural communities. These committees and associations can be authorized to administer day-to-day operations, assist in project review, and facilitate other functions of the clearinghouse in conjunction with the state agency. An example of a clearinghouse managed by state agency with assistance from liaison entities includes the Long Island Sound (Connecticut). Long Island Sound's Nitrogen Credit Advisory Board is made up of members of Connecticut Department of Energy and Environmental Protection and members of stakeholder groups including publicly owned treatment works, municipal public works, and municipalities.

*5.2.2.2 Pros/Cons*

***PRO: Opportunity to Leverage External Resources***

Clearinghouses utilizing a management approach of a state agency with assistance from liaison entities can draw upon and utilize the expertise and capacity of existing entities such as conservation districts and wastewater treatment facility representatives. This type of expertise can be helpful when providing administrative and technical services such as reviewing and verifying farm practices. However, arguably more valuable is the brokering and outreach and education that these liaisons can provide, given their existing relationships with permittees and the agricultural community.

***PRO: Avenue for Provide Transparency of State Agency Decision-Making and Stakeholder Engagement***

Another unique benefit to this approach is the opportunity to provide transparency and allow stakeholders to be engaged in various clearinghouse processes. Providing a clearinghouse structure with entities familiar with the concerns and needs of permittee and agricultural communities can provide transparency and assure those communities that their voices are recognized by the clearinghouse. Feedback from these stakeholders can help inform the most effective methods for executing the clearinghouse to meet the needs of participants. Additionally, this internal stakeholder feedback can be valuable when updating and improving the clearinghouses in the future.

***CON: Potential Conflict of Interest with Buyers***

Potential conflicts of interest may be presented to clearinghouses utilizing liaisons connected to phosphorus program participants during the decision-making process. State agencies utilizing these types of liaison entities will likely have to implement additional processes and reviews to address conflicts of interest such as vetting processes.

***5.2.3 Third Party***

*5.2.3.1 Description and Examples/Precedence*

A clearinghouse operated by a third-party managing entity is authorized by state legislation to operate and provide services largely independently from state agency staff. Third-party entities can consist of private or nonprofit entities and can also contract consultants or integrate liaison entities to bolster expertise and capacity in establishing and administering the clearinghouse.

This approach has been used largely utilized by local conservation authorities to administer watershed-scale clearinghouses including by the Lake Simcoe Region Conservation Authority (Ontario), Miami

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Conservancy District (Ohio), the Cherry Creek Basin Water Quality Authority (Colorado), and the Virginia Nutrient Credit Exchange Association. The only managing third-party entity on this list that is not a conservation entity is the Virginia Nutrient Credit Exchange Association, which represents an association of wastewater treatment facility operators authorized through state legislation to operate Virginia’s Nutrient Reduction Exchange.

Clearinghouses employing a third-party managing approach can also integrate consultants and liaison entities in the administration of services. The South Nation Total Phosphorus Management Program (Ontario) utilizes a multi-stakeholder Clean Water Committee to review and approve projects. Given the agricultural community’s concerns that South Nation Conservation Authority staff may not have sufficient familiarity with current farming practices, the clearinghouse uses farmers as agricultural consultants for project verification.

5.2.3.2 *Pros/Cons*

***PRO: Flexibility to Leverage Consultants and Liaison Entities***

Although a state agency often can provide some of the administrative and technical support required to operate a clearinghouse, a state agency may not have the capacity and specialized expertise required to operate a clearinghouse that provides specialized services such as administering auctions and associated registries. Clearinghouses authorized to use a third-party managing entity can be administered by staff uniquely qualified and available to provide these services. If this is not the case, these third-party entities can often establish and administer the clearinghouse with the assistance of consultants or liaison entities. Moreover, the inclusion of some liaison entities can provide some of the opportunities for transparency and stakeholder engagement (discussed in Section 5.2.2.2).

***CON: Lack of Complete Self-sufficiency in Providing Services without State Agency***

In some of the water quality programs where previous third-party managed clearinghouses were established, clearinghouses could facilitate these programs relatively independently from the state agency, as these conservation entities have been authorized to review and approve the credit calculations and documentation. However, this may not be possible to replicate in Wisconsin where the state agency is only authorized to perform water quality program tasks such as reviewing and modifying individual permits. In Wisconsin, a clearinghouse managed by a third party may require the third-party managing entity to create additional processes for interfacing and engaging with the state agency to complete several clearinghouse tasks. This challenge is further exacerbated for private entities seeking to set up a clearinghouse as they may lack both the authorization to perform clearinghouse tasks and sufficient resources for the establishment of a clearinghouse. As sufficient transaction volume during the startup is unlikely, it would be difficult for a private entity to establish a clearinghouse without the support and resources of an existing entity.

**5.3 Clearinghouse Service Levels**

Based on the range of possible services that a clearinghouse can provide to address the “common tasks” and “supplemental services” described in Section 3, three clearinghouse service levels have been developed representing sets, or “menus” of services of increasing capability in meeting the needs phosphorus program participants. These service levels are integral to the development of the three clearinghouse options outlined in Section 5.4. The three service levels below and their associated pros and cons are described in detail in Section 5.4 and summarized in Table 6.

### **5.3.1 Lower Service Level**

#### *5.3.1.1 Description and Examples/Precedence*

The lower service level represents a clearinghouse that provides basic, minimum services that might include:

- Assistance with program application forms
- Technical assistance for watershed analysis
- Technical assistance for estimating phosphorus reductions
- Technical assistance for watershed plan development
- Maintenance of practice registry (WQT)

The services provided by the lower service level are summarized in Option 1 of Table 6 and described in further detail in Section 5.4.1.1.

### **5.3.2 Moderate Service Level**

#### *5.3.2.1 Description and Examples/Precedence*

The moderate service level represents a clearinghouse that provides these services:

- Assistance with program application forms
- Phosphorus reduction certification process
- Brokering function to facilitate partner identification
- Technical assistance for watershed analysis
- Technical assistance for estimating phosphorus reductions
- Technical assistance for watershed plan development
- Maintenance of certified reduction generating project registry and practice registry (WQT)
- Streamlining of review and submittal process
- Third-party project verification
- Management of ongoing documentation

The services provided by the moderate service level are summarized in Option2 of Table 6 and described in further detail in Section 5.4.2.1.

### **5.3.3 Higher Service Level**

#### *5.3.3.1 Description and Examples/Precedence*

The higher service level represents a clearinghouse that provides the highest range of service. These services include:

- Assistance with program application forms
- Phosphorus reduction certification process
- Formal marketplace (WQT) and exchange (AM and MDV)
- Spot auction and forward contract auctions (WQT)
- Development of financial and legal agreements
- Insurance pool of credits (WQT)
- Technical lead for watershed analysis
- Technical lead for estimating phosphorus reductions
- Technical lead for watershed plan development

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- Maintenance of certified reduction generating project registry, marketplace auction results (WQT), master practice registry for all three phosphorus programs
- Streamlining of review and submittal process
- Third-party project verification
- Management of ongoing documentation

The services provided by the higher service level are summarized in Option 3 of Table 6 and described in further detail in Section 5.4.3.1.

#### **5.4 Three Options for Wisconsin Clearinghouse Consideration**

Based on the above summations, three options for clearinghouse structures have been developed with consideration for the managing entity and service levels all at a statewide geographic scope. These three clearinghouse options are summarized in Table 6 and described in this section. Pros and cons for these options are included as well as potential resources and funding needs to operate clearinghouses at these varying levels. There is no precedent for establishing these specific options; rather, these present a crosscut of opportunities consistent with services provided by other established clearinghouses. As such, this provides the opportunity to especially view service levels from a Wisconsin DNR perspective relative to current agency capacity to administer a clearinghouse at varying levels of administration and management that could be offered.

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**Table 6.** Clearinghouse Services and Sophistication Options (Most Simplistic to Most Sophisticated)

	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
<b>Geographic Scope &gt;&gt;</b>	Statewide	Statewide	Statewide
<b>Managing Entity &gt;&gt;</b>	State Agency or Third Party	Third Party or State/Liaison	Third Party or State/Liaison
<b>Service Level &gt;&gt;</b>	<b>Lower Service Level: Clearinghouse Provides Basic Technical Assistance</b>	<b>Moderate Service Level: Clearinghouse Provides Broker-like Function, Certification Process, and Streamlined Review Process</b>	<b>Higher Service Level: Clearinghouse Provides Formal Marketplace/ Exchange, Certification Process, and Streamlined Review Process</b>
<b>Description of Clearinghouse Option</b>	Clearinghouse provides basic assistance to permittees and phosphorus reduction generators to facilitate WQT, AM, and MDV. This option leverages existing services and methods provided by WDNR where possible.	Clearinghouse provides basic assistance from Option 1 and incorporates a certification process and broker-like function to bring potential permittees, generators, and counties together. The certification process brings the NPS generator interested in phosphorus reduction-generating projects to the table and certifies the credits from their potential project before requiring a commitment. The clearinghouse would organize and advertise these certified credits to permittees interested in WQT, AM, and MDV and connect partners in a broker-like manner. This option also streamlines some WQT, AM, and MDV review processes and provides project verification.	Clearinghouse provides a certification process, streamlined review process, and a formal marketplace (WQT) and exchange (AM/MDV). Facilitates WQT through the establishment and administration of credit pricing mechanism, spot and forward contract auctions, associated registries, services to assemble legal/financial arrangements, project verification, ongoing documentation management, and an insurance pool of credits to provide permit compliance certainty. A variation is for the clearinghouse to serve as intermediary between buyers and sellers and clear all transactions by purchase and selling all WQT credits. With this credit intermediary variation, the clearinghouse could provide financial risk management for permittees in the event of credit default due to project failure. An exchange can be developed to facilitate AM and MDV that provides similar services including a platform for partners to be identified, registries, services to assemble legal/financial arrangements, project verification, and management of ongoing documentation.

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	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
<b>Geographic Scope &gt;&gt;</b>	Statewide	Statewide	Statewide
<b>Managing Entity &gt;&gt;</b>	State Agency or Third Party	Third Party or State/Liaison	Third Party or State/Liaison
<b>Service Level &gt;&gt;</b>	Lower Service Level: Clearinghouse Provides Basic Technical Assistance	Moderate Service Level: Clearinghouse Provides Broker-like Function, Certification Process, and Streamlined Review Process	Higher Service Level: Clearinghouse Provides Formal Marketplace/ Exchange, Certification Process, and Streamlined Review Process
<b>Programmatic, Policy, or Legislative Changes Required to Implement Clearinghouse</b>	This option requires no programmatic, policy, or legislative changes.	This option requires minimal administrative/policy changes within WDNR to facilitate the certification process, broker-like function, and project verification.	This option would be facilitated by changes to state legislation requiring trade agreements to be between the buyer and seller and programmatic changes to authorize a formal marketplace and exchange.
<b>Additional Services Not Currently Provided by WDNR</b>	None	Certification process, broker-like function, streamlined review process, project verification.	Certification process, formal marketplace/exchange, marketplace/exchange registries, legal and financial arrangement, project verification, streamlined review process, permit compliance certainty. Potential additional services include financial risk management for project failure.
<b>Generally Required Tasks for WQT, AM, and MDV</b>	<b>Services Provided by Clearinghouse Options to Address Generally Required Tasks</b>		
<b>Complete application forms.</b>	Clearinghouse works with permittee to complete necessary application forms.	Clearinghouse will manage basic NPS generator information during the certification process. Permittee information can be managed early in the process as permittees apply to be connected to potential generators.	Clearinghouse will manage all permittee, generator, and county information through the certification and application process for the marketplace/exchange.



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	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
<b>Geographic Scope &gt;&gt;</b>	Statewide	Statewide	Statewide
<b>Managing Entity &gt;&gt;</b>	State Agency or Third Party	Third Party or State/Liaison	Third Party or State/Liaison
<b>Service Level &gt;&gt;</b>	Lower Service Level: Clearinghouse Provides Basic Technical Assistance	Moderate Service Level: Clearinghouse Provides Broker-like Function, Certification Process, and Streamlined Review Process	Higher Service Level: Clearinghouse Provides Formal Marketplace/ Exchange, Certification Process, and Streamlined Review Process
<b>Find partners/credit generators/P load reducers.</b>	Service not provided.	<p>Certification process would provide potential supply information to interested permittees. Interested permittees would apply and be connected to the potential supplier through the clearinghouse.</p> <p>WQT: Clearinghouse would directly connect buyers/sellers.            AM: Clearinghouse would identify and aggregate generators in AM eligible watersheds and connect with interested permittees by watershed. MDV: Clearinghouse would connect interested generators with counties and/or permittees.</p>	<p>Clearinghouse will utilize a certification process to bring potential nutrient reduction generators and a formal marketplace and exchange to connect generators and permittees.</p> <p>WQT: Clearinghouse would provide a formal marketplace. The clearinghouse would establish a pricing mechanism (i.e., auction, reverse auction) and two types of auctions (spot auctions and forward contract auctions).</p> <p>AM: Clearinghouse would provide an exchange to identify and aggregate generators in AM eligible watersheds and connect with interested permittees by watershed. MDV: Clearinghouse would provide an exchange to connect interested generators with counties and/or permittees.</p>
<b>Find brokers/exchange.</b>	Service not provided.	Clearinghouse would function as a broker-like entity.	Clearinghouse would establish and administer a formal marketplace/exchange.

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	<b><u>Option 1</u></b>	<b><u>Option 2</u></b>	<b><u>Option 3</u></b>
<b>Geographic Scope &gt;&gt;</b>	<b>Statewide</b>	<b>Statewide</b>	<b>Statewide</b>
<b>Managing Entity &gt;&gt;</b>	<b>State Agency or Third Party</b>	<b>Third Party or State/Liaison</b>	<b>Third Party or State/Liaison</b>
<b>Service Level &gt;&gt;</b>	<b>Lower Service Level: Clearinghouse Provides Basic Technical Assistance</b>	<b>Moderate Service Level: Clearinghouse Provides Broker-like Function, Certification Process, and Streamlined Review Process</b>	<b>Higher Service Level: Clearinghouse Provides Formal Marketplace/ Exchange, Certification Process, and Streamlined Review Process</b>
<b>Conduct watershed analyses.</b>	Provide technical assistance for watershed analysis.	WQT: Clearinghouse would directly connect buyers/sellers and provide technical analysis as needed. AM and MDV: Provide technical assistance for watershed analysis.	WQT: Marketplace/exchange or clearinghouse would purchase and provide credits, providing technical analysis as needed. AM: Clearinghouse would identify and aggregate generators in AM eligible watersheds and lead in watershed analysis. MDV: Clearinghouse would connect interested generators with counties and/or permittees and lead in MDV watershed analysis.
<b>Estimate P reductions.</b>	Provide technical assistance for estimating P reductions.	Phosphorus reduction calculation would be reviewed and approved during the certification process. Clearinghouse will assistance to potential generators.	Phosphorus reduction calculation would be reviewed and approved during the certification process. Clearinghouse will provide technical assistance to potential generators.
<b>Complete watershed plans.</b>	Provide technical assistance for watershed plan development.	Clearinghouse acting as a broker-like entity would provide technical assistance need for WQT plan and watershed plan development.	WQT: Marketplace/exchange or clearinghouse would purchase and provide credits and develop WQT Plan if needed. AM & MDV: Clearinghouse could take lead role in AM and county plan development

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	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
<b>Geographic Scope &gt;&gt;</b>	Statewide	Statewide	Statewide
<b>Managing Entity &gt;&gt;</b>	State Agency or Third Party	Third Party or State/Liaison	Third Party or State/Liaison
<b>Service Level &gt;&gt;</b>	Lower Service Level: Clearinghouse Provides Basic Technical Assistance	Moderate Service Level: Clearinghouse Provides Broker-like Function, Certification Process, and Streamlined Review Process	Higher Service Level: Clearinghouse Provides Formal Marketplace/ Exchange, Certification Process, and Streamlined Review Process
<b>Establish financial arrangements.</b>	Service not provided	Service not provided	WQT: Clearinghouse would establish trade agreements between itself and permittees/generators. If clearinghouse acts as intermediary, the clearinghouse would also administer transactions. AM and MDV: Clearinghouse would develop financial and legal agreements between permittees, generators, and counties.
<b>Develop legal agreements.</b>	Service not provided	Service not provided	WQT: Clearinghouse would establish trade agreements between itself and permittees/generators. AM and MDV: Clearinghouse would develop financial and legal agreements between permittees, generators, and counties.
<b>Register practices/credits.</b>	Maintain practice registry.	Maintain practice registry and develop registry to track certified projects for interested permittees.	Develop, maintain, and publish marketplace/exchange registry for public accountability. Registry for WQT would include registry for spot auctions and forward auctions.
<b>Implement practices.</b>	Service not provided	Service not provided	Service not provided
<b>Verify practices/credits.</b>	Service not provided	Clearinghouse would create appropriate verification criteria by project type and contract work with local or regional entities that could serve as third-party verifiers.	Clearinghouse would create appropriate verification criteria by project type and contract work with local or regional entities that could serve as third-party verifiers.

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	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
<b>Geographic Scope &gt;&gt;</b>	Statewide	Statewide	Statewide
<b>Managing Entity &gt;&gt;</b>	State Agency or Third Party	Third Party or State/Liaison	Third Party or State/Liaison
<b>Service Level &gt;&gt;</b>	Lower Service Level: Clearinghouse Provides Basic Technical Assistance	Moderate Service Level: Clearinghouse Provides Broker-like Function, Certification Process, and Streamlined Review Process	Higher Service Level: Clearinghouse Provides Formal Marketplace/ Exchange, Certification Process, and Streamlined Review Process
<b>Complete required documentation, submittal to WDNR</b>	Service not provided	Clearinghouse would manage and review Notice of Intent for eligibility, assist in development of necessary plans and documents, and submit required documentation to WDNR for review and permit modification or reissuance.	Clearinghouse would manage and review Notice of Intent for eligibility, lead in development of necessary plans and documents, and submit required documentation to WDNR for review and permit modification or reissuance.
<b>Submit ongoing monitoring/annual reporting documentation.</b>	Service not provided	Clearinghouse can manage and track ongoing documentation and annual reporting (would require WDNR approval).	Clearinghouse can manage and track ongoing documentation and annual reporting (would require WDNR approval).
<b>Supplemental Services</b>			
<b>Permit Compliance Certainty for Project Failure</b>	Service not provided	Service not provided	Clearinghouse would provide an insurance pool of credits which can be utilized by permittees to meet permit requirements in the instance of credit default or as needed.
<b>Financial Risk Management for Project Failure</b>	Service not provided	Service not provided	Clearinghouse acting as an intermediary could take on financial risks of project failure.

#### **5.4.1 Option 1 Clearinghouse**

##### *5.4.1.1 Description*

This option is a clearinghouse that provides basic assistance to permittees and phosphorus reduction generators beyond what is currently provided by WDNR to facilitate WQT, AM, and MDV participation. This option would utilize existing services and procedures provided by WDNR where possible. Given the current resources of the WDNR, clearinghouse services would be focused on simplifying the application process for permittees, providing technical assistance for watershed analysis using WDNR methods (i.e., PRESTO P load estimation tool), phosphorus reduction/credit estimation, and plan development. This clearinghouse would not provide services for identifying and connecting permittees, phosphorus reduction generators, and counties, or developing legal and financial agreements. However, some of these services could be provided but would likely have to come from additional staffing sources such as conservation districts or a third party. Under this option, water quality trading would still be required to operate through bilateral trading.

##### *5.4.1.2 Pros/Cons*

#### ***PRO: Option 1 Clearinghouse Requires Relatively Low Operating Cost and Minimal Changes***

Under a state agency, this option represents a clearinghouse that would leverage existing WDNR services to help permittees, phosphorus reduction generators, and counties with participation in Wisconsin's three P reduction programs. Additionally, this option is unlikely to require any changes to programs, policies, or legislation and costs for additional staffing resources may be low. Under a third-party managing entity, these operation costs would be increased. Although unlikely to reach the same costs as Option 2, a clearinghouse managed by a third-party entity would require staffing to provide technical expertise and capacity to administer a registry of phosphorus reductions.

#### ***CON: Option 1 Clearinghouse Lacks the Sophistication to Provide Connectivity between Participants or Supplemental Services***

Services provided under this clearinghouse option may help facilitate participants through the more administrative processes of these three P reduction programs. However, this lower level of services would not help reduce the significant barriers to water quality programs identified by point sources. Potentially, two of the most beneficial services that a clearinghouse could provide are the ability to act as an intermediary between participants to reduce barriers in identifying and engaging partners and providing a mechanism for permit certainty. These two needs have been recognized by the Wisconsin DNR as challenges across the state's water quality trading and adaptive management and would not be provided with this option. Under this option, the clearinghouse could not procure phosphorus reductions and would be unable to provide a mechanism for permit certainty for project failure under any of the P reduction programs. Additionally, this option would also lack other crucial elements for encouraging participation such as financial assurances for project failure, or providing economic insight into phosphorus reduction price, supply, and demand.

#### ***CON: Option 1 Clearinghouse Suffers from Scalability Issues***

Option 1 presents opportunities to leverage existing expertise and resources from WDNR to provide clearinghouse services for permittees and generators. Although WDNR can provide most of these services for the current scope of Wisconsin's phosphorus programs, it is unclear if this will be the case if the current limited scale of WQT and AM participation increases.

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5.4.1.3 *Cost Considerations*

Option 1 represents a clearinghouse that utilizes and leverages the existing expertise and resources of the WDNR. Depending on the overall use of the clearinghouse, little to no additional staffing would be required.

5.4.2 ***Option 2 Clearinghouse***

5.4.2.1 *Description*

The Option 2 clearinghouse would provide the basic technical assistance available from Option 1 and incorporate additional services to connect partners, encouraging and facilitating participation in Wisconsin's phosphorus programs. This option would utilize a certification process to allow interested phosphorus reduction generators to have their projects and associated credits pre-approved. Phosphorus reduction generators would not have to commit to implementing a project until after a permittee has committed to a financial agreement for the certified reduction. The clearinghouse would also operate with a broker-like function by announcing certified reductions and pairing these with interested permittees and counties.

Local or regional stakeholders, such as conservation districts, could be contracted to provide annual third-party verification for project performance based on project type verification criteria developed by the clearinghouse. Such criteria would provide consistency and accountability for project performance. This option also consolidates some of the WQT, AM, and MDV review processes by managing the submittal of information including necessary plans for WDNR in a single, standardized format. Option 2 would provide services not currently offered by WDNR and likely would be better facilitated through a third party or state/liaison approach. However, under this option, water quality trading would still be required to operate through bilateral trading and no permit certainty mechanism could be utilized.

5.4.2.2 *Pros/Cons*

***PRO: Clearinghouse Option 2 Reduces Barriers to Entry for Wisconsin Phosphorus Programs***

The certification process provides interested nonpoint source phosphorus reduction generators a process for understanding the eligibility and number of credits that can be generated from a proposed project before committing to the process of identifying partners and negotiating terms. Certified credits from proposed plans are registered and organized by watershed and posted by the clearinghouse for interested permittees to find. Interested permittees can contact the clearinghouse which will match permittees with generators of certified credits under WQT, AM, or MDV. A certification and brokering process not only assists in expediting the Wisconsin's phosphorus programs but also encourages participation of permittees and nonpoint source generators by reducing core barriers of entry (deciphering demand and supply and identifying partners) to the programs.

***PRO: Clearinghouse Option 2 Requires Relatively Modest Policy/Programmatic Changes***

Implementation of an Option 2 clearinghouse would require only modest policy and programmatic changes to Wisconsin's phosphorus programs. Brokering entities are recognized and recommended by the Wisconsin Department of Natural Resources, including the role of credit brokers in WDNR's *A Water Quality Trading How to Manual* (WDNR 2013a) and would require little to no programmatic or policy changes to AM or MDV to implement.

The certification process would require the clearinghouse to perform an administrative review of the eligibility of nonpoint source phosphorus reduction generators and a technical review of the quantification

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of credits generated from proposed projects. Eligibility of generators and their proposed phosphorus reduction generating projects are currently reviewed by WDNR during their review and approval of WQT, AM, and other watershed plans. A certification process would require the clearinghouse to receive approval from WDNR to review and certify eligibility of generators and their proposed phosphorus reduction projects prior to the development of WQT, AM, and other watershed plans

Streamlining the submittal and review process between participants and WDNR would require the clearinghouse to develop a standardized form and process for submitting necessary information and data to WDNR during the review and approval of permit modifications and reissuance. This process will diverge from the procedure outlined in WDNR's current guidance documents for WQT, AM, and MDV and would require WDNR approval and likely program and policy modifications to allow the clearinghouse to streamline these submittal and review tasks. An auditing process by the DNR for certified projects could help address this WDNR program responsibility.

***CON: Clearinghouse Option 2 Lacks Sufficient Capability to Provide Permit Certainty or Financial Risk Management for Project Failure***

Although these clearinghouse services provide more services than Option 1, it would not offer the procurement and administrative capabilities of a clearinghouse used to administer formal marketplaces. The Option 2 clearinghouse would not provide an insurance pool of credits for permittees of source reductions to meet permit compliance nor would it absorb those costs if a nonpoint source phosphorus reduction project fails.

**5.4.2.3 Cost Considerations**

The services provided by the Option 2 clearinghouse such as the credit certification process, brokering function, and streamlined review process are currently not provided by WDNR and will likely require additional staffing capacity from either a third party or state/liaison to provide these services.

**5.4.3 Option 3 Clearinghouse**

**5.4.3.1 Description**

Option 3 represents the most sophisticated and complex clearinghouse option. This clearinghouse would provide the services described in Option 2 with the addition of a formal marketplace (WQT) and exchange (AM/MDV). A variation of this option is for the clearinghouse to serve as an intermediary between buyers and sellers and clear all transactions by purchase and selling all WQT credits.

The use of a formal marketplace/exchange is intended to foster participation by making the participation of permittees and generators in all three phosphorus reduction programs as simple and transactional as possible. The Option 3 clearinghouse would establish a marketplace utilizing a pricing mechanism such as an auction or reverse auction to determine credit pricing by bids and offers based on a transparent methodology.

Spot auctions administered by the clearinghouse would provide permittees contemporaneous credits and forward contract auctions to provide credits for future compliance years. Spot auctions allow permittees to purchase credits generated from verified projects for the current compliance year, encouraging generators to implement projects prior to known demand creating a pool of readily available credits that can be used as needed by permittees for permit compliance certainty. The clearinghouse could also purchase credits from the spot auctions to create a separate insurance pool of credits or use other funding mechanisms to provide permittees participating in WQT an option for achieving permit compliance in the event that credits purchased from a permit-associated credit default due to project failure.

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In programs such as the Great Miami River Watershed Pilot Trading Program, credits in the insurance pool have a set amount of time to be used from when they are procured and deposited (i.e., five years). After this time, credits in the insurance pool are retired (Miami Conservancy District 2005). A forward contract auction allows permittees to purchase certified credits for future compliance years from pre-approved projects that have not yet been implemented. This provides permittees the ability to plan for future credit supply and costs associated with the use of WQT significantly reducing uncertainty for credit demand for generators. Note that these two types of auctions can still be utilized if the clearinghouse is operating as an intermediary for credit purchase and sale. Funds would be managed by the clearinghouse with payments delivered to generators upon delivery of verified projects from fully implemented projects.

Although a formal marketplace might not be useful for adaptive management and multi-discharge variance, the clearinghouse can still seek to provide an exchange platform. Related services could include identifying nonpoint source generators in a watershed, executing standardized and transparent financial and legal arrangement between partners, registering and tracking nonpoint source phosphorus generating projects, and managing ongoing documentation. For all three phosphorus programs, local or regional stakeholders such as conservation districts would be contracted by the clearinghouse to provide annual third-party verification for project performance based on project type specific verification criteria developed by the clearinghouse to provide consistency and accountability for project performance.

*5.4.3.2 Pros/Cons*

***PRO: Clearinghouse Option 3 Reduces Barriers to Entry for Wisconsin Phosphorus Programs***

See Section 5.4.2.

***PRO: Clearinghouse Option 3 Incentivizes Participation in Phosphorus Programs.***

In Wisconsin's WQT program, the use of spot auctions and forward contract auctions in tandem could substantially reduce barriers to participation for permittees and nonpoint source phosphorus generators. The use of both auction types could facilitate development of an insurance pool of credits to secure permit compliance and opportunities to plan for prospective permit needs. Spot auctions would provide an incentive for generators to implement projects prior to identifying a buyer. Forward contracts would provide prospective generators certainty that a proposed project generating certified credits will not have to be implemented until a buyer is identified.

***PRO: Clearinghouse Option 3 Provides Market Certainty and Potentially other Supplemental Services.***

An Option 3 clearinghouse provides permittees participating in WQT an insurance pool of credits that functions as a backstop for permit compliance in the instance that credits from a nonpoint project associated with a permit were to default due to project failure. The clearinghouse could either administer the purchase of credits by permittees from this insurance pool of credits or create additional incentives for WQT permittee participation by absorbing this risk and providing permittees financial assurances for project failure.

***CON: Clearinghouse Option 3 Likely Requires Policy Changes and Potential Legislative Changes.***

The implementation of an Option 3 clearinghouse would require policy, programmatic, and potentially legislative changes to facilitate WQT, AM, and MDV through a formal marketplace and/or exchange. Policy and program changes pertaining to the certification and streamlined review process are discussed in Section 5.4.2.2. Additional modifications may be required by Wisconsin legislation related to WQT to facilitate the Option 3 clearinghouse. As written, legislation requiring trade agreements may hinder the clearinghouse's ability to operate a formal marketplace or exchange for WQT that offers uniform credits.



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The implementation of a formal marketplace and/or exchange is intended to eliminate uncertainty by offering credits with uniform and clear legal and financial provisions for all participants.

At present, Section 283.84 of Wisconsin Administrative Code requires a trade agreement to be formed between the credit buyer and credit generator, and/or WDNR or a local government unit. However, in order for the Option 3 clearinghouse to implement a formal marketplace and/or exchange, it is likely that legislation will need to be modified to allow permittees, generators, and counties to make these financial and legal arrangements in the trade agreement with the clearinghouse. This is particularly relevant if the clearinghouse were to operate as an intermediary for purchasing and selling credits. It would be difficult to transact credits if financial and legal arrangements would still need to be settled between the credit generator and the end purchaser of the credit. This could be ameliorated with a legislative modification that explicitly allows trade agreements between WQT participants and the clearinghouse. Additionally, programmatic or policy changes may need to be implemented to authorize the use of a formal marketplace for WQT and exchange for AM and MDV programs.

#### *5.4.3.3 Cost Considerations*

The Option 3 clearinghouse will demand the greatest financing considerations of all three options as Option 3 provides a suite of services that will require additional resources outside of WDNR's current capacity. This section will reference available information on the establishment and administrative costs associated with prior clearinghouses and clearinghouse-like entities discussed in the Task 1 and the Task 2 memoranda.

#### *Costs Associated with Clearinghouse Establishment and Ongoing Services*

The establishment of an Option 3 clearinghouse would include the development of 1) the clearinghouse structure, governance, policy, and associated documents/reports; 2) marketplace auctions and integrated registries; and 3) an insurance credit pool. Although there is currently no published information available from previous clearinghouses on actual costs for these types of clearinghouses, these may be coarsely estimated from USDA-NRCS Conservation Innovation Grant projects around WQT. In the Great Miami setting, over \$0.5M in federal grant funding was used to develop and establish the current structure for this clearinghouse. More than \$2M in federal and match funding was expended just to develop a sophisticated registry in the Ohio River Basin WQT Pilot Program used to support and track crediting projects. In the Lake Simcoe setting, approximately \$500K of an \$800K Provincial grant was expended for establishing the P Offset Program's architecture that functionally serves as a clearinghouse. Costs for this level of clearinghouse development in Vermont for the Lake Champlain Basin were estimated at \$500K with 0.5 full-time equivalent staff for annual operations yielding about \$1.3M in development and operating costs over a targeted 20-year period (K&A and Tetra Tech 2015).

Other estimates are available to provide insight for ongoing costs. Clearinghouse operational costs would include staffing or consulting capacity for 1) managing auctions and registries, 2) providing technical assistance, and 3) administering documentation review and submittal. Given the availability of existing tools and water quality data in Wisconsin, the Option 3 clearinghouse will likely dedicate more of its staffing needs towards providing administrative (i.e., certification and documentation) and marketplace services. Therefore, annual administrative costs for operating the technical needs of this level of clearinghouse services will likely be higher compared to previously discussed clearinghouse-like entities.

Annual costs for technical services are unlikely to reach \$500,000 as clearinghouse-like entities utilizing annual budgets in this range, including the Lake Simcoe Phosphorus Offset Program, the Great Miami River Watershed Trading Pilot and Cherry Creek Basin, expend a majority of those budgets to meet

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exhaustive programmatic requirements for extensive monitoring, planning, research, and technical documentation. Clearinghouses more focused on providing administrative services, as the Option 3 clearinghouse is likened to, have seen annual administrative costs for these services in a lower \$100,000 - \$150,000 range. Of particular note is PENNVEST which uses approximately \$100,000 per year to administer Pennsylvania's nutrient trading program and run spot and forward contract auctions. However, an important caveat to consider for technical, administrative, and marketplace services is the relatively smaller geographic scope of these other clearinghouses, which were designed to operate within only a single watershed or multiple HUC6 and HUC8 watersheds.

The costs of some of these services are more insulated from effects of scaling, such as the administration of auctions and registries. However, services that inherently require more discrete attention and resources from the clearinghouse such as administrative document reviews, verification, and technical assistance, may affect annual staffing needs and costs if the Option 3 clearinghouse is in wide use. Due to the larger geographic scale and wider extent of the Option 3 clearinghouse, the \$100,000 - \$150,000 annual administrative cost figure would likely be at the lower end of the range for Option 3 clearinghouse annual administrative costs when fully servicing the state of Wisconsin.

*Sources of Financing*

All the clearinghouses with available information on financing were largely funded through state money and grants. Several clearinghouses supplemented this funding with a service fee on either each credit or transaction. PENNVEST uses a flat service fee of 2.5 cents per credit transacted while the Tar-Pamlico Nutrient Trading Program utilizes a 10% administration fee on every trade. PENNVEST's credit reserve is funded by requiring credit calculation methodologies to account for 10% of reductions to be set aside for the credit reserve.

**6.0 CONCLUSION**

Three options for a clearinghouse structure have been presented in this technical memorandum. These options offer increasing levels of sophistication and services and also require increasing legislation and policy changes and financial investment to implement moving from Option 1 towards Option 3. Option 1 presented in this technical memorandum reflects the services that a clearinghouse could provide with current agency capacity to facilitate water quality programs. With higher effort, Option 2 offers a suite of services to permittees and phosphorus reduction generators based on a clearinghouse requiring no additional legislation and limited policy and program changes. Options 1 and 2 can address certain technical and administrative challenges facing participants in Wisconsin's water quality programs but largely cannot address the two significant barriers to entry identified by point sources of permit compliance uncertainty and difficulty in identifying and negotiating with partners. Although Option 2 does provide brokering capabilities to assist in identifying partners, permittees and credit generators will be responsible for the process of negotiating, finalizing, and receiving regulatory approval for bilateral agreements and lack a mechanism for permit compliance certainty. The suggested structure and services presented in the Option 3 clearinghouse, including the use of a marketplace with a pricing mechanism and development of an insurance pool of credits, can assuage major concerns of permit and cost uncertainty associated with Wisconsin's water quality trading program. For the purposes of facilitating participation in Wisconsin's water quality programs to meet statewide phosphorus criterion, the Option 3 clearinghouse provides the greatest support in administering water quality programs and reducing the significant barriers to entry for participants.

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