

July 13, 2017

Michigan Department of Environmental Quality  
Water Resources Division  
Lansing, MI 48909

**Re: Draft Domestic Action Plan for Lake Erie**

Thank you for the opportunity to comment on the draft Domestic Action Plan for Lake Erie (also referred to as 'DAP' or 'the Plan'). Overall, we are encouraged that the Quality of Life Agencies (QOL) continue to prioritize nutrient load reductions and broader water quality measures in the Lake Erie watershed. That said, we are concerned by the direction and recommendations of the DAP, especially in regards to its consistent reliance on voluntary best management practice adoption for the agricultural sector, the absence of programs or practices that will achieve significant reductions in soluble reactive phosphorus (SRP), and a general lack of a robust monitoring system and monitoring data to measure DAP progress.

In the absence of a Total Maximum Daily Load (TMDL) for the Western Basin, we believe the Quality of Life Agencies should make significant changes to the DAP in order for it to be successful and play a fundamental role in shaping near- and long-term actions to improve instream water quality, meet regional Lake Erie watershed goals, and help bring Lake Erie back in line with Michigan water quality standards. The following document summarizes our recommendations to be included in future DAP iterations and overall Agency planning efforts. We hope our comments lead to productive Departmental conversations, modifications to the DAP and ultimately, improving the health of Lake Erie.

## Evaluation of Progress

The DAP makes a commitment to adaptive management and annual progress reports. Further it states that “Michigan will engage the public in further development and implementation of the DAP through periodic public meetings and discussions with stakeholder groups.” We commend the state for making these critical commitments; however, more clarity should be provided on what this process will entail. To honor these commitments we request the state release annual progress reports for public comment and establish a standing DAP workgroup populated with stakeholder groups and experts to evaluate DAP implementation progress. Without additional clarification on how the state actually intends to deliver on these stakeholder engagement goals, we find little assurance these actions will occur.

## Triggering a TMDL

As it stands, the state appears to be delaying TMDL development and instead utilizing the DAP as an alternative pollution control method, obviating the need for a TMDL. This would be acceptable if the state had listed Western Lake Erie as a Category 4b water under Section 303(d) of the Clean Water Act (CWA) which says, “a TMDL is not needed because other pollution control requirements are expected to result in the attainment of an applicable water quality standard (WQS) in a reasonable period of time.” However, Michigan listed Western Lake Erie as a Category 5 water under Section 303(d) which according to EPA’s Integrated Reporting Guidance says, “available data and/or information indicate that at least one designated use is not supported or is threatened, and a TMDL is needed.” Based on this, the state appears to be employing a delaying tactic to avoid triggering the TMDL development process. By utilizing flexibility in the CWA the state has deferred Lake Erie to a post-2022 evaluation and possible TMDL development, saying, *“those TMDLs that were not identified as a priority in this first TMDL Vision document will be assigned a TMDL date of post-2022, signifying their reevaluation for prioritization during the next TMDL Vision review process.”*

The lengthy delay by the state to simply begin evaluating, let alone the actual TMDL development process, is unacceptable and does not show the state is serious about addressing water quality issues in Lake Erie. The DAP should include a specific trigger to apply the authority of the Clean Water Act if, after five years of DAP implementation, by 2020 (with reported progress measurements before 2020), monitoring results indicate western Lake Erie Basin load reductions will not achieve the 40% target for SRP and TP by 2025 using the DAP approach. Ideally this would include working in conjunction with other jurisdictions in the Western Basin watershed to develop a TMDL for the Western Basin, along with a tri-state watershed implementation plan to restore beneficial uses for assessment units already designated as impaired on state 303(d) lists.

*Michigan’s current Sec. 303(d) list schedules Lake Erie for evaluation and possible TMDL development after 2022. We urge the state to use the DAP and the next integrated report deadline to commit to aligning the schedule for TMDL evaluation with the 2020 goal in the Collaborative Agreement.*

## Subwatershed Allocations

The total phosphorus loads for the major tributaries to Lake Erie have been identified for the 2008 water year (October 1, 2007 to September 30, 2008). We recommend that subwatershed allocations be established for all HUC 10 and/or 12 watersheds within the eight priority tributaries identified in the *Recommended Phosphorus Loading Targets for Lake Erie* final report.

A framework based on sub-allocations for all major tributaries will allow jurisdictions and stakeholders to measure, report and verify effectiveness of phosphorus reduction programs. Such a process would include identifying nutrient pollution sources and amounts by category, utilizing emerging technologies such as phosphorus fingerprinting, and quantifying reductions from each source necessary to meet the allocated targets (at subwatershed scale). It would also help define the priorities within each subwatershed to meet its allocated targets as well as the dollars invested and the realized nutrient reductions.

## Achieving Regional Goals with the DAP

One of the most consequential shortcomings of the Plan is its lack of justification that the suggested recommended practices and projects will achieve, and more importantly surpass, the 40% TP reduction target or the 40% spring time reductions in SRP. We believe it is critical that the final DAP chart out a more specific course outlining how measurable actions today will directly advance nutrient reduction targets, most especially SRP targets, and ultimately achieve Annex 4 goals. Absent this information the Plan is simply a grouping of information without any real indication that it will adequately meet state and regional goals.

More glaring is the complete lack of an outline for how the state will achieve SRP reduction goals. It is clear that levels of SRP entering the western basin have increased and are driving toxic algal growth<sup>1</sup>. Given the outsized role of SRP, several stakeholders provided comments to the MDEQ on the implementation plan under the collaborative agreement and urged the department to revise the plan so that it included programs geared towards SRP reduction. Despite those comments, the final iterations of the implementation plan and consequently the DAP have failed to provide any real understanding for which practices and programs the state is using to reduce SRP.

We strongly recommend that the Quality of Life Agencies revise the DAP so that it includes numeric TP and SRP annual reduction estimates for the practices and programs within the plan. These annual numeric reduction estimates should be provided separately for the Detroit River, the River Raisin, and the two Maumee River tributaries all totaling the 40% TP and SRP goals for each river. Additionally, the state should include all citations and data sources that back up these reduction estimates. If it is unclear how much reduction will be achieved from a specific practice or program or if there is too limited data to arrive at a reduction estimate, that uncertainty should be detailed in the DAP along with a plan for how the state will fill in that missing information.

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<sup>1</sup> Emerging research suggests nitrogen plays a significant role in determining algal bloom toxicity. The DAP must also continue to implement management strategies for controlling nitrogen loading.

Our concern is illustrated by several recommendations offered on page 5 of the draft DAP. These recommended practices and implementation goals provide no explanation of the expected benefits to Lake Erie and appear out of context from larger watershed goals.

At a June 28 public comment meeting in Adrian, Jim Johnson (MDARD) indicated these recommendations represent the maximum project implementation opportunities given state resources. While we are encouraged the state is focused on maximizing its resources, we question if these best management practices (BMPs) represent the most effective methods for curbing nutrient pollution and how the state will evaluate BMP successes. Furthermore, we remain unclear how these activities fit into the overall reduction targets for Lake Erie.

### **Nutrient Management Plans**

The Plan calls for “at least an additional 3.5 percent or 35,000 more cropland acres in Western Lake Erie Basin (WLEB) are managed under nutrient management plans (NMPs).” Certainly we support and encourage the use of NMPs and believe that when done properly they can limit nutrient loading. However, we question: 1) how the 3.5 percent increase was determined; 2) how many acres are currently under NMPs; 3) how many acres will still require NMPs; and, 4) has the state determined a quantifiable nutrient load reduction from NMPs? Furthermore, the robustness and consistency among NMPs (depending on which entity writes the NMP) vary widely and could compromise the effectiveness of such plans.

We encourage future iterations of the DAP to continue advocating for NMPs but the Plan should place their implementation in a broader context as well as outline a plan to ensure each NMP is achieving the assumed nutrient reductions.

### **Drainage Water Management**

Similar to NMPs, the DAP calls for an additional 120 drainage water management (DWM) projects to control tile discharge from 3,300 acres. We commend the DAP for exploring the use of DWM to control flow, and consequently nutrients, but again question how these implementation targets were determined. This recommendation raises several questions: 1) how many DWM projects does the state expect will be needed; 2) how many acres need to be covered by DWM; 3) are these 120 projects targeted to high priority/high nutrient loss areas; and, 4) what is the nutrient load reduction resulting from these, and future DWM projects?

Overall we question the validity of using DWM for controlling SRP loading. Research suggests that DWM is a relatively effective practice for reducing nitrate loading through the promotion of denitrification. However, research does not currently support the use of DWM for controlling SRP. SRP may be reduced in the short term as water—and consequently SRP—is held back in the tile. However, when the control structures are opened to prep fields for planting, the water and SRP is released.

We caution the state not to assume that the installation of DWM will result in significant TP/SRP load reductions. With already limited resources the state must prioritize practices that truly improve water quality by reducing phosphorus loading.

### **Load Reductions from MAEAP**

The Plan also calls for additional sediment (50,000 ton/yr.), phosphorus (90,000 pound/yr.), and nitrogen (200,000 pound/yr.) reductions. Initially we question how the State determined these goals. Do these figures represent the total load reductions needed to keep Lake Erie at its current degree of impairment, or do these quantities represent levels needed to begin improving water quality? If these load reduction targets are simply a Band-Aid, and not actually improving water quality, what is the estimated load reduction needed to begin improving Lake Erie? These questions speak to a fundamental predicament for evaluating the success of (agricultural) nonpoint source BMPs. The State and MAEAP focus on edge-of-field load reductions as opposed to changes in instream water quality. The problem is that broader regional goals as well as the public demand changes to instream water quality. While we fully recognize edge-of-field reductions do not (always) easily translate to instream water quality, it will be important for the DAP to discuss what the expected water quality changes will be as a result of edge-of-field practices.

We commend the DAP for continuing to push agricultural nonpoint source load reductions. However, given the lack of incentive for most farmers to engage in MAEAP, the current lack of data collection capabilities, and the inability of voluntary programs to achieve large-scale adoption of key practices on high nutrient-loss areas, we are not assured the state will be able to demonstrate the effectiveness of MAEAP for controlling nutrients, let alone MAEAP's ability to serve as the primary vehicle for reducing TP and SRP from the agricultural sector. We hope the final version of the DAP is able to identify how load reduction data collection and verification will occur on MAEAP-verified farms.

*We call on the agencies to outline which specific BMPs and management strategies in MAEAP will be employed in the Western Basin watershed and provide estimates for expected SRP and TP reductions.*

### **Monitoring**

As is a common theme throughout our comments, accurately monitoring BMP effectiveness and overall water quality changes is essential in order to legitimize the DAP. In large, the DAP fails to outline how Michigan will establish robust monitoring networks capable of tracking instream water quality and ecosystem changes within the Lake Erie watershed. Nor does it provide any information on how Michigan's data will be synched up with similar data from Ohio, Indiana, and Ontario. Michigan should undertake an assessment of current monitoring capabilities within the watershed and identify gaps in order to align water quality monitoring with the adopted targets to meet the ecosystem objectives called for in the Great Lakes Water Quality Agreement. Our specific comments are as follows.

1. Michigan identified a monitoring gap in the tributaries that feed into the Maumee River. However, it has provided no data from the 2016 monitoring and sampling program, nor did it provide any information on a more consistent monitoring protocol moving forward for those

tributaries. Without this information it is impossible to comment on the effectiveness of this new monitoring regime. Additionally, in the absence of a strong, consistent monitoring program it is difficult to see how the state will hold true to its commitment to adaptive management.

2. The state indicates that for the Detroit River it is relying only on “monitoring data from Great Lakes Water Authority (GLWA).” More specifically the DAP states that “for the Detroit River, reductions will be calculated primarily using the GLWA and Wayne County discharge monitoring.” That is insufficient to accurately gauge the full loading of phosphorus from the Detroit River as a whole. Monitoring should also be expanded to channels abutting the Detroit River to develop a more complete picture of loading and DAP progress.

Expanding monitoring efforts on the Detroit River, and its channels, is necessary to refine Detroit River load estimates and better account for the Detroit River as a single source of nutrient loading. As Huron River Watershed Council stated in their comments on the implementation plan under the collaborative agreement, “Phosphorus loading into the Detroit River from upstream is not addressed in the plan. DEQ should provide evidence supporting the need to focus continued effort on DWSD and Wayne County WWTPs. Loading studies indicate that sources loading upstream to the Detroit River (i.e. the Detroit River as a single source) are second only to the Maumee River in phosphorus loading to WLEB.” Why is upstream loading in the Lake St. Clair watershed and Detroit River channel dredging not addressed in this plan?

3. The DAP asserts “QOL believes there has been a 20 percent TP reduction since 2008” in the River Raisin without providing sufficient supporting evidence. As previously discussed in comments on Michigan’s implementation plan for the collaborative agreement, DEQ’s extrapolation of a reduction trend in the River Raisin from Heidelberg data is scientifically weak. Additional analysis of the same data by University of Michigan researchers indicated that both springtime and annual TP and SRP loading has varied but has not definitively declined since 2008. The same analysis indicated that the vast majority of data from January-August 2008 is missing from the dataset, making it nearly impossible to delineate a reliable trend line for loading.

We ask the DEQ to clarify how a 20 percent TP reduction was estimated and also to provide similar data for SRP load reductions in the River Raisin. Given the inability to calculate an accurate trend line, we also ask the agencies to stop asserting claims of a 20% sustained reduction for the River Raisin within the DAP. We find including the trend line within the graph and asserting a 20% sustained reduction to be misleading.

4. We encourage the final monitoring plan to implement event mean concentration (EMC) monitoring. Research suggests that the majority of annual agricultural TP/SRP loading results from only a few rain events. This means that if sampling is reliant on a more random data collection procedure (i.e., grab samples during select times and/or storm events), the state may be unable to capture high loading situations and conditions. EMC will give the most reliable

picture for when and how TP/SRP enters the watershed throughout the year, allowing the state to pinpoint locations and management practices for reducing loads.

5. Finally, and perhaps most importantly, the DAP does not outline how Michigan plans on funding future monitoring efforts for the Lake Erie basin. Most DEQ water quality monitoring funds are provided through the Clean Michigan Initiative (CMI). However, all CMI bond funds will be allocated as of October 1, 2017 making this pot of money unavailable for future efforts.

We urge the state to continue to prioritize effective, meaningful monitoring programs and stress the importance of not relying on bond funds. The use of bond money for monitoring is not widely supported and the DAP should offer alternative funding options.

### Best Management Practice Recommendation

Countless studies and models point to agricultural sources as the dominant culprit of Western Lake Erie's harmful algal blooms and the most significant contributor to total lake loads, especially in the Maumee watershed. The state has relied almost entirely on the voluntary adoption of BMPs to curb agricultural inputs. That approach has done little to improve overall watershed health and will not be sufficient in achieving state and regional goals. We believe several legislative and administrative changes must be made in order to require a minimum set of stewardship practices among agricultural producers in the watershed (and state). These recommendations are discussed in the "Legislative/Administrative Action" section of this document. We recognize implementing such standards will take time but are confident progress can be made in the meantime. Our comments here summarize key BMP opportunities the state should explore in the near term.

A primary issue for the state is how to address SRP loading. We applaud the state for recognizing the importance of containing this portion of TP and its recognition that precision agriculture technologies such as grid sampling, variable rate application, and yield mapping can help identify high priority acres for BMP implementation. However, the DAP's reliance on GAAMP standards and MAEAP practices will inherently miss the mark for reducing SRP loads. MAEAP was not designed to significantly reduce nutrient loading, especially subsurface loading. The program protects farms against catastrophic environmental failures. And while we encourage all farmers to implement the principles of MAEAP, the construct of the Program does not lend itself to tackling SRP loading.

The state must acknowledge that no single practice will capture surface and subsurface phosphorus and nitrogen loss and that each field may respond differently to the same BMP. As such, the state must focus on prescribing a suite of practices that, in combination, will reduce legacy phosphorus, mitigate surface and subsurface runoff, and ultimately improve instream water quality. The following summarizes several practices and approaches we believe merit consideration and implementation throughout the watershed.

## **Perennial Vegetation**

A 2016 report from the University of Michigan offered land management strategies for curbing nutrient loading to Lake Erie and achieving the Annex 4 goals. Of these, several management plans involved removing active row crop acres from production and converting the acreage to perennial vegetation. The science behind perennialization and its improvement on water quality is widely studied and promoted throughout the country.

We strongly encourage the state to explore options for increasing perennial coverage throughout the watershed and for specifically targeting highly erodible and highly saturated (with nutrient) marginal land for conversion. Ideally the state would require a percentage of acres to be converted to perennial vegetation on any farm in the Lake Erie watershed. At minimum the state should allocate resources for producers to convert marginally productive row crops to permanent perennial vegetation. While resources exist at the federal level to promote perennial conservation, USDA programs are often cumbersome and many farmers are discouraged from participating.

## **Treatment Wetlands**

The DAP makes several mentions of the importance of protecting and preserving wetlands throughout the watershed. We commend the state and DAP for recognizing the importance of wetlands for their ability to sequester nutrients, sediments, and ultimately improve water quality. We believe that when constructed correctly, treatment wetlands may provide a more cost-effective option for mitigating multiple pollutants from various sources. While individual, disparate conservation projects in the headwaters are important and should be encouraged, these practices will do little for broader instream/in lake water quality. Treatment wetlands located at the tail waters of larger drainage areas have the ability to capture pollutant loading that is not captured by edge-of-field conservation practices.

## **Legacy phosphorus**

Phosphorus concentrations, and consequently algal blooms, in Western Lake Erie are highly correlated with annual precipitation. Thanks to climate change this has become more apparent in recent years as the intensity and frequency of rain events has increased. These events not only flush recently applied phosphorus fertilizer and manure but also legacy phosphorus that has built up over several decades, particularly in fields with manure application. This legacy phosphorus load is a result of several factors including conservation tillage and over application. While no-till is a widely accepted BMP for controlling sediment and nutrient loss from surface runoff, it also results in phosphorus buildup in the upper soil layers.

We support the continued use of no-till; however, we strongly encourage the state to consider ways to reduce legacy phosphorus. One option could be to till a portion of no-till fields to gradually incorporate phosphorus back into lower soil layers. Subsurface injection also helps reduce phosphorus runoff when no-till is employed. Injection is more effective at keeping nutrients at the root zone, as opposed to broadcast surface application, and will help decrease legacy buildup at the soil surface. We should note that subsurface injection may not be effective throughout the entire watershed. Highly saturated areas

may still release phosphorus as SRP, even when injected, which is especially concerning in high-density tilled watersheds. The state must consider the relationship between manure application, phosphorus loss, and transport via tile lines when implementing BMPs.

Additionally the state should require annual comprehensive soil sampling and ban application of manure and fertilizer above the agronomic rate. Reducing over-application is a key way to deplete the legacy phosphorus that has built up. This is discussed further in later sections.

With some fields in Michigan containing enough legacy phosphorus to supply multiple decades of crop phosphorus needs, the state must consider options for addressing this source of loading. Absent incorporation or other means to address excess nutrient buildup, the state is inadvertently creating areas with higher risk of nutrient runoff.

## Manure Transport Risk and the Manure Application Risk Index Tool

We have several concerns with the use of Manure Application Risk Index tool (MARI) within the GAAMPs and consequently the reliance on MARI within the DAP to offer assurance that phosphorus transport from manured fields is limited. The following summarizes our concerns with MARI. We encourage the DAP to call for a reevaluation of risk assessment tools, especially given our new understanding of how phosphorus moves throughout fields and watersheds.

### **Phosphorus Leaching Index**

The MARI tool includes a specific field feature that estimates risk of nitrogen leachability but fails to include an analogous factor for phosphorus. Since the most recent version of MARI was developed/revised in 2008 (NRCS-Michigan MARI, Spreadsheet 4.0 November 2008), it is entirely possible the tool assumes a relatively small amount of phosphorus leaves the field via leaching to shallow groundwater. Our understanding of the pathways for phosphorus flows has evolved, and we now understand a growing percentage of phosphorus leaving fields is via subsurface transport in the form of SRP. This is especially true as we continue to observe more frequent and intense precipitation events throughout the state. Depending on the timing of data and research used when developing MARI, this phenomenon may not be reflected in MARI's calculation. Furthermore, MARI is a national tool that was refined for use in Michigan. Since soil characteristics, land use, precipitation, and other factors vary from state to state, MARI may no longer be reliably calibrated for Michigan's unique and rapidly changing landscape.

### **Soil Test Phosphorus and Environmental Risk**

Absent a specific factor for phosphorus leaching, MARI appears to correlate soil test phosphorus (STP) with relative risk of phosphorus transport. This, in our opinion, is an inappropriate correlation. STP is an estimate of phosphorus availability for plant use and not a concentration measurement of soil phosphorus. Since STP is related to plant uptake, a more accurate measurement would be conducted in the soil zone with the highest root concentration (6-8 inches). However, risk of phosphorus transport is generally correlated with phosphorus concentrations in the upper soils (0-3 inches). A Pennsylvania

State University article concludes, “no direct relationships can be assumed to exist between the soil test calibration for crop response to P and the calibration for P loss in surface runoff.”<sup>2</sup> This conclusion is echoed by the 2010 Ohio Lake Erie Phosphorus Task Force Report which states<sup>3</sup>:

*“A potential issue that may make extrapolation of soil fertility P testing inappropriate for evaluating environmental P transport is that when STP is used to evaluate fertility for crop nutrition the soil is sampled up to 8 inches deep to represent P availability in the root zone. However, runoff P is a surface phenomenon and is strongly related to the upper couple inches. If the soil is well mixed and the STP is consistent throughout the soil test depth there is no problem. However, if soil P becomes stratified due to surface applications of P that are not incorporated into the soil, a surface soil sample may be more representative of P transport risk than a soil sample used to evaluate crop nutrition. This may become increasingly more important in no or low till.”*

Our concern is that due to a reliance on conservation tillage throughout the watershed the likelihood of soil stratification is high and thus the use of STP measurements to assess environmental risk appears inappropriate.

Fundamentally, we question the validity of allowing a STP limit of 150ppm. This value exceeds any agronomic rate recommendations—even when including an assurance factor—and further contributes to the buildup of legacy phosphorus throughout the Lake Erie Basin. As a result, high intensity precipitation events wash high quantities of TP—and more importantly, SRP—into Lake Erie tributaries. Michigan has diverse landscapes with variable soils, nutrient concentrations, precipitation, and other landscape characteristics. These variations directly contribute to the relative risk of nutrient transport. In response, the state should reduce the allowable STP limit across the board to align more closely with realistic crop needs and should further reduce the allowable limit in high priority areas such as the Lake Erie watershed. Our recommendation is to align Michigan’s STP limit with the tri-state agronomic rate recommendations for phosphorus.

An overall disconnect between STP and environmental risk of soil phosphorus leachability is concerning and we urge the DAP to address this point in future iterations.

### **Vegetated Buffers**

Vegetated buffers appear to play a disproportionately high role in determining manure application risk (buffers are weighted at 1.5 while many other factors are weighted at 1.0). While buffers are relatively effective at trapping nitrogen and phosphorus transported via sediment/surface runoff, they are notably less effective at mitigating nitrogen and—more so—phosphorus transported via subsurface pathways. MARI should continue to include buffers as part of risk determination. However, the DAP should call for an additional field factor to be included—or existing factors modified—to better recognize the contributions of SRP and management practices that mitigate SRP.

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<sup>2</sup> Managing phosphorus for agriculture and the environment. 2001. Prepared by Andrew Sharpley, soil scientist, USDA-ARS Pasture Systems and Watershed Management Research Unit; and Douglas Beegle, professor of agronomy. The Pennsylvania State University.

<sup>3</sup> Ohio Lake Erie Phosphorus Task Force Final Report. 2010. Ohio Environmental Protection Agency.

We urge the final version of the DAP call to for the reevaluation of MARI as an appropriate tool for estimating phosphorus transport risk. As it stands MARI does not appear to adequately address subsurface transport of phosphorus as SRP and instead promotes the use of BMPs designed for capturing nutrients in overland flow. Recent comments from MDARD suggested the ‘science’ shows that winter manure application can be done safely and without environmental impacts. We are deeply concerned the state believes MARI is an accurate and reliable tool for measuring manure application risk and believe the DAP offers an apt opportunity to drive reform.

## Legislative/Administrative Action

We applaud the agencies for making specific recommendations within the DAP for legislative changes, including urging legislators to adopt a much-needed state septic code. However, we feel several necessary statutory changes were left off the list of recommendations.

### **Winter Manure Application**

To date no entity has offered a defensible position for the necessity of allowing winter application of manure. A CAFO must have at least 6 months of storage. If winter application occurs then that producer is either lacking the required capacity and the state must address the insufficient infrastructure or the producer knowingly applies manure at inappropriate times for unknown reasons. Either way the state must address these manure applications.

The language of the DAP consistently downplays the extent and impact of winter application in the watershed. As a point of common sense, the DAP must call for a ban on manure and biosolid application on frozen, snow covered, or saturated fields.

### **Comprehensive Soil Testing**

The state must implement comprehensive soil testing of the Lake Erie basin. The state’s understanding of the optimal BMP and BMP location is severely limited by our lack of comprehensive soil nutrient information. With more complete soil health data in conjunction with geological/topographic data, the state will better identify sub regions and/or fields at high risk for nutrient transport as well as the appropriate BMP for addressing nutrient runoff given site-specific characteristics.

Absent this complete picture the state appears to be selecting relatively random locations and types of BMPs for implementation. This approach is inherently inefficient and not sustainable in the long term. We urge the state to consider this gap in essential information.

### **Minimum Conservation Standards**

The state should develop a set of minimum standards that all agricultural producers must adhere to. Establishing baseline performance requirements will benefit environmental goals but also assist farmers who are already going above and beyond with land/nutrient conservation. An issue MAEAP is currently debating is how a farmer promotes MAEAP as the preferred environmental/sustainable option to consumers. The problem is that most consumers have no concept of how a typical farm operates and so

promoting MAEAP as ‘going above and beyond normal farming’ is not a strong selling point for consumers. Establishing minimum standards provides a benchmark for producers to legitimately surpass and in turn, improve their marketability.

### **Water Quality Monitoring Funding**

The CMI bond has funded most of Michigan’s water quality monitoring to date. All CMI money will be allocated as of October 1, 2017 and no additional funding requests or appropriations have been made to fill both current gaps and future monitoring needs in the Lake Erie watershed. The agencies should identify the total funding needed for this monitoring system and the legislature should ensure that sustainable funding is put towards that need.

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We appreciate the opportunity to provide comments on this critical plan and look forward to future dialogue on the implementation of the Domestic Action Plan for Lake Erie.

Sincerely,

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