

Table 10 – Greenhouse Nutrient Management Implementation Plan Elements and Schedule

Plan Elements	NPS Category Elements	Target/ Milestone	Completion Dates
1. stakeholders	40-50 Greenhouse operators in the watershed Kalamazoo Valley Plant Growers Association West Michigan Greenhouse Association MSUE SW District Horticultural Agent Michigan Groundwater Stewardship Program (MGSP) MI Wellhead Protection Program (local) NRCS/RC&Ds MDEQ-SWQD MDEQ-WMD Conservation Districts Drain commissioners City, township and county officials	Meet with MSUE agent Review program progress with MGSP Meet with Association and individual operators as necessary	Summer, 2002 Winter, 2003 Spring, 2004
2. regulations	<ul style="list-style-type: none"> - Federal Clean Water Act - Michigan Natural Resources and Environmental Protection Act (PA 451) - Michigan Drain Code - TMDL - Zoning ordinances - Municipal statutes 	On-going Identify any specific Local references	As needed Winter, 2003
3. goals	<ul style="list-style-type: none"> - Reduce P delivery by up to 50% through continued improvements in pesticide and fertilizer management, water supplies and testing, irrigation, employee training, building site management, control of soil movement off site, discharged water from greenhouse operations and storm water runoff from sites. - Whenever possible, move to conformance with the elements of the “ideal range conditions” as described in the MGSP Greenhouse* A*Syst Program (see attached) 	Implement 35 operational improvements (BMP) annually Implement 20 site improvements annually	2006 2012
4a. ongoing efforts	<ul style="list-style-type: none"> - Greenhouse*A*Syst program is being piloted in 2002 in Kalamazoo County - MDEQ Compliance and enforcement efforts 	Conduct 15 pilot Greenhouse*A*Syst audits 5 visits/meetings	Fall, 2002 Fall, 2004

4b. recommendations by NPS Categories	<ul style="list-style-type: none"> - Expand Greenhouse*A*Syst program to all greenhouses throughout entire watershed - Meet with Greenhouse Association to explore possible research, education and other cooperative initiatives - Education/demonstration projects 	<p>Undertake 10 additional audits annually</p> <p>Coop agreement and research proposal by 2005</p> <p>2-4 annually</p>	<p>2012</p> <p>Spring, 2004</p> <p>Continuing</p>
5. funding resources	<ul style="list-style-type: none"> - Greenhouse operators - Cost share with operators on implementation of improvements <ul style="list-style-type: none"> - MGSP - other sources - Sub-basin 319 initiatives where applicable - CMI when available - State/federal grants or assistance - Trading incentives 	<p>10-15 annually</p> <p>IP</p>	<p>Continuing</p>
6. program resources	<ul style="list-style-type: none"> - EPA, MDEQ, NRCS, MGSP, MSUE, Conservation Districts, NPO's - West Michigan Greenhouse Association - State and national trade associations - Internet information from around the country - Private sector - Education/Demonstration projects 	<p>Continuing through planning period</p>	<p>Continuing through 2015</p>
7. cost optimization	<ul style="list-style-type: none"> - Individual NPS determinations of services & materials (who can do it best/lowest cost) - Evaluate internal savings/revenue enhancement potential - Feasibility studies/pilot programs when completed 	<p>Address in concert with 4, 5 and 6 above</p>	<p>Ongoing through business operations</p>
8. data gaps	<ul style="list-style-type: none"> - Timing (seasonality) of most significant loading - "Background" documentation of contributions within particular reaches of a waterbody - Phosphorus sampling requirements (locations, frequency, level of detection) - Costs to implement controls to reach 50% reductions - Where/how do you get the most bang for the buck - Future growth needs in industry - Tracking successful techniques implemented locally - Local difficulties implementing changes 	<p>Address in concert with 4, 5 and 6 above</p>	<p>Summer, 2004</p>

9. accountability structure	<ul style="list-style-type: none"> - Reports to document all costs of share funds expended, and for what improvements - Number of Greenhouse*A*Syst audits completed - Periodic written reports from operators - Efficacy of improvements per monitored reductions for all greenhouses in program 	<ul style="list-style-type: none"> - Annual county MGSP reports Annual county MGSP reports - 10 reports annually - Annual summation report to Implementation Committee 	Continuing
10. reporting	<ul style="list-style-type: none"> - Annual reporting from MGSP and greenhouse operators - Interim reports (quarterly summaries?) - Complaints logged from citizens and governmental officials - Results to Implementation Committee 	<ul style="list-style-type: none"> Official reports shared with Implementation Committee Complaints should be written and documented (website?) Annually 	2003 and continuing
11. timeline	<ul style="list-style-type: none"> - Pilot Greenhouse*A*Syst in Kalamazoo County during summer of 2002 - Have Greenhouse*A*Syst program available for entire watershed by summer, 2004 - Annual report on progress of reductions (monitored) each year for all greenhouses in program 	<ul style="list-style-type: none"> - 10 audits completed - Offered to all counties - Annual report to Implementation Plan Committee 	<ul style="list-style-type: none"> Fall, 2002 Summer, 2004 Annually through 2015
12. tracking	<ul style="list-style-type: none"> - Report number of Greenhouse*A*Syst audits completed - Compile number and nature of improvements <ul style="list-style-type: none"> - cost share - other - Calculated P reductions from completed site improvements, implemented BMPs and monitoring results - Education/demonstration projects - Number of meetings with operators 	<ul style="list-style-type: none"> -MGSP reports (annual copy to Implementation Committee) -MGSP reports (annual copy to Implementation Committee) -Assign appropriate P values to improvement activities and begin tracking Two/year 10/year minimum 	<ul style="list-style-type: none"> Continuing Continuing
13. monitoring	<ul style="list-style-type: none"> - Monitoring and modeling pre BMP installation and post BMP/Greenhouse*A*Syst Implementation - Frequency and location of written reports of discharges to surface water 	<ul style="list-style-type: none"> IP Monitor within 1-2 months of action implemented unless vegetative (after next growing season) Implementation Committee receives reports as prepared 	2002/2003 and continuing

14. contingency plan	<ul style="list-style-type: none"> - Create additional incentives and/or funding for improvements - Enhance educational and assistance efforts - Elevate priority of greenhouse operations for trading incentives - Direct regulation of greenhouse operations via: <ul style="list-style-type: none"> - Michigan PA 451 - Phase II Stormwater - Designation under Industrial Stormwater provisions of greenhouses as “significant contributors” 	<p>IP</p> <p>Include greenhouses under appropriate regulatory strategy IF NECESSARY</p>	<p>As needed</p> <p>2007-2008 IF NEEDED</p>
15. updating strategy	<ul style="list-style-type: none"> - Through TMDL Committee/authority (timing of reports/reviews/updates...yearly, 5 years, other) 	<p>Observations and review of annual reports</p>	<p>Spring, 2006</p>