

Non-point Source GIS Tracking by MSUE – Additional Information

Database Location – It is recommended that the system and database be housed at a KBS server during the development phase. This will allow for regular maintenance and backup of the information. The TMDL committee will determine the long-term location of the database, as the implementation progresses.

Database Selection - Microsoft? Access is recommended as the software for the database design. Access is a widely held database product. Citizens, organizations, government agencies, and universities requesting and gaining approval for a copy of the database for research or analysis should already possess Access, or can obtain it at a reasonable cost. Integration with other Microsoft? products, such as Excel, Word, and Power Point, provides opportunity for direct input of electronically stored information and the output to documents, reports, and presentations.

Database Design

Record Definition - Each record will contain a single data value and the following required fields: date, description, type, location, units, and source. Queries will allow for the sorting and display of the data by any combination of fields. Analysis, reporting, and modeling using the queried data will be possible by interested parties.

Field Definition - The consistency of the data fields, which identify standard attributes about the record, is critical to the integrity of the system. Lookup tables, which are lists of allowable values, will be utilized to force consistency of spelling, capitalization, and abbreviations for each record parameter other than value. Attachment D illustrates examples of some of the lookup tables that will be utilized.

Field Definitions

Date	Reference Date	mm/dd/yyyy
Description	Data Description	Develop Lookup Table
Data Type	Numeric	Actual Estimated Calculated
	Activity	Educational Extension Outreach Program
Location	GPS Address County	Latitude & Longitude Street, Zip code See Attachment D Table 1

	Township	See Attachment D Table 4
	Municipality	See Attachment D Table 3
	Section	Develop Lookup Table
	Zip code	See Attachment D Table 2
	Watershed	Develop Lookup Table
Value	Numeric	Data Value
	Activity	Description
Units	Units for Value	Develop Lookup Table
Source	Source of the Data	Develop Lookup Table

Data Identification - The progress of the TMDL Implementation Plan towards phosphorus reduction to achieve water quality goals will be the focus for identifying the parameters to monitor. The TMDL Implementation Plan identifies goals, ongoing efforts, tracking and monitoring categories, which will identify the parameters to monitor. Upon completion of the Plan, these categories will be compiled and matched to create a list of required data. This list will be reviewed and refined with the Implementation Committee, as well as identification of potential sources for the data.

Data Acquisition - Data acquisition will be targeted toward the highest level of consolidation. The order of the search will be Statewide, Countywide and Municipality, and finally, Township-wide. Individuals will be identified and contacted for data sourcing and meetings held to identify and facilitate the acquisition of data from those sources. The data identification list will be the basis of the discussions. Sources may be government agencies, professional associations, citizens' groups, just to name a few. Some examples of potential statewide data sources are as follows:

- Michigan Department of Agriculture
- Michigan Department of Environmental Quality
- USDA Natural Resource Conservation Service
- Michigan Department of Transportation
- Michigan Department of Consumer and Industry Services, Construction
- Michigan Nursery and Landscape Association
- Michigan Farm Bureau

Data Gaps - It is fully expected that there will be data required, to assess the condition of a watershed characteristic, which is not being gathered by anyone. These will be identified and a plan will be developed to fill those data gaps. Funding will probably be required to implement this plan.

Data Input - The staff at KBS will work with the sources to transfer information electronically to the database where possible or manually input data as required. Long term, direct transfer or input of the data to the database would be desirable from a resource and timeliness perspective.

Web Based Query - A web site will be developed allowing users to query the database through the worldwide web. Data from the queries can be displayed, printed, or downloaded.

Reporting Tools - The data from the database will be compiled and reported in standard formats on a regular basis. These standard reports will be created for repetitive use and efficiency of resources.

Maintenance Plan - A plan will be developed and documentation created on the design and maintenance of the database and supporting programs to facilitate the transition to other project personnel.

GIS Tracking and Monitoring Plan

Table 1: County Lookup Table

Allegan	Jackson
Barry	Kalamazoo
Calhoun	Kent
Eaton	Ottawa
Hillsdale	Van Buren

Table 2: Zipcode Lookup Table

48813	49015	49055	49083	49246	49316	49447
48827	49017	49060	49087	49249	49323	49450
49001	49021	49068	49088	49250	49328	49453
49002	49026	49070	49097	49252	49333	49464
49004	49033	49071	49201	49262	49344	
49007	49034	49073	49224	49269	49348	
49008	49046	49076	49237	49271	49408	
49009	49050	49078	49241	49283	49419	
49010	49051	49080	49242	49284	49423	
49012	49053	49082	49245	49315	49426	

Table 3: Municipality Lookup Table

Albion	Eastwood	Litchfield	Richland
Allegan	Fennville	Marshall	Saugatuck
Augusta	Galesburg	Martin	South Gull Lake
Battle Creek	Gobles	North Adams	Spring Arbor
Bellevue	Greater Galesburg	Olivet	Springfield
Brownlee Park	Hanover	Otsego	Springport
Charlotte	Homer	Parchment	Wayland
Comstock Northwest	Hopkins	Parma	Westwood
Concord	Kalamazoo	Plainwell	
Douglas	Level Park-Oak Park	Portage	

Table 4: Township Lookup Table

Adams	Dorr	Leighton	Richland
Alamo	Eaton	Leroy	Ross
Albion	Eckford	Liberty	Salem
Allegan	Emmett	Litchfield	Sandstone
Assyria	Fayette	Manlius	Saugatuck
Barry	Fillmore	Maple Grove	Scipio
Battle Creek	Fredonia	Marengo	Sheridan
Bedford	Gaines	Marshall	Somerset
Bellevue	Ganges	Martin	Spring Arbor
Bloomingtondale	Gunplain	Monterey	Springport
Brookfield	Hamlin	Moscow	Texas
Byron	Hanover	Newton	Thornapple
Carmel	Heath	Orangeville	Trowbridge
Charleston	Homer	Oshtemo	Valley
Cheshire	Hope	Otsego	Walton
Clarence	Hopkins	Overisel	Watson
Climax	Jamestown	Parma	Wayland
Clyde	Johnstown	Pavilion	Wheatland
Comstock	Kalamazoo	Pennfield	Yankee Springs
Concord	Kalamo	Pine Grove	Zeeland
Convis	Laketown	Prairieville	
Cooper	Lee	Pulaski	