

Minnesota Phosphorus Source Assessment Tool

Data Collection Sheet

By completing this form for a watershed, you will have all the data needed to use the Minnesota Phosphorus Source Assessment Tool (PSAT) to analyze the relative contribution of phosphorus sources to that watershed. Instructions are on pages 3 and 4.

I. Watershed data

Annual rainfall: _____ in.

Stream length _____ miles

II. Land uses acres

Land use category	Acres	Notes	
URBAN			
		For residential land, indicate housing density or % impervious cover	
		Dwelling units per acre (<1, 1 to 4, >4, or multifamily units)	Percent impervious cover
Residential			
Commercial			
Industrial			
Roadway			
RURAL			
Forest, brush, or grassland			
Rural development			
AGRICULTURE			
Row crops, with manure applications			
Row crops, no manure applications			
Perennials and pastureland			
Dairy (half corn, half alfalfa, manure applications)			
OPEN WATER			
Lake or river of interest			
Upstream open water			
GRAVEL PITS or other open mine			
Generating runoff			
No runoff			
Active Construction			
Vacant Lots			

III. General

Number of dwelling units _____ OR total population _____ *Optional:* Number of individuals per dwelling unit _____

Typical soil test P in residential areas (note units and type of test): _____ *Optional:* Subsurface soil P: _____

IV. Septic systems

Percentage of dwellings with septic systems: _____

Fraction of those septic systems that are: working _____ failing _____ ITPHS _____

V. Sewer systems

Miles of sanitary sewer _____

If available, provide information on the size and frequency of sewer overflows: _____

VI. Livestock on open lots (include wild geese, if relevant)

Species	Number of animals	Percent of waste exposed to runoff.

VII. Permitted dischargers

Name of discharger	Flow (MGD or MGY)	P concentration

VIII. Other phosphorus sources

If available, provide sediment loading data from monitoring near the end of the watershed. Note the monitoring location and tons of sediment per year:

Road sanding: Pounds of sand applied per year _____ P content of the sand _____%

Direct human waste (e.g. marine toilets, or recreational events such as fishing derbies):

Describe the number of people or boats, and time spent on the water: _____

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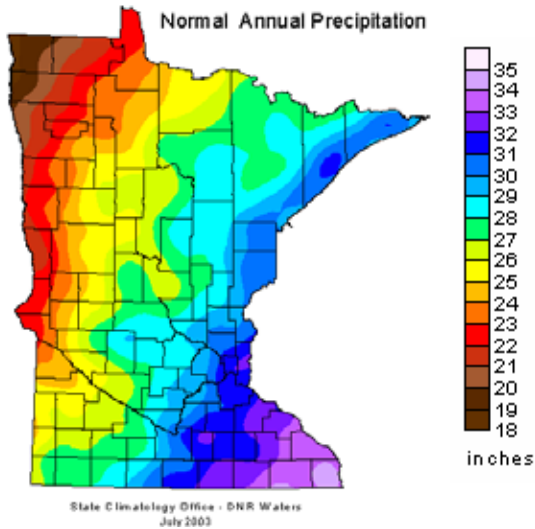
Instructions for Data Collection

Make notes about your confidence in the quality of the data collected. Where you are uncertain, estimate the possible range of values.

I. Watershed data

Annual rainfall:

Stream length:



Indicate the miles of stream within the watershed. This data is needed only if you want to estimate streambank erosion, and have sediment monitoring data.

II. Land use acreages

The precision and categories of land use data you provide will depend on your sources of data. Better detail will improve the quality of model results.

- Urban - For residential land, try to estimate the percent of impervious cover (area covered by pavement, roofs, gravel driveways, etc). If you do not have impervious cover data, then estimate the average number of dwelling units per acre. The model will provide a default impervious cover value for a given density.
- Rural - "Forest, brush, or grassland" refers to land with minimal soil disturbance so rain infiltration is good and runoff is low.
- "Rural development" refers to home lots larger than 2 acres or less than 10% impervious cover. Smaller lots should be included in urban residential.
- Agriculture - Estimate as best as possible the distribution of agricultural land between row crops and perennial crops or pasture. Also try to estimate the proportion of row crop acres that receive manure applications in a year.
- Open Water - The "Lake or river of interest" is the lake or river at the bottom of the watershed; i.e., the lake whose watershed you are analyzing.
- "Upstream open water" is any other open water in the watershed, such as wetlands and other lakes.
- Active Construction - Indicate the average number of acres that are under construction at any particular time.
- Vacant Lots - Only include un-vegetated lots exposed to runoff.

III. General

IV. Septic systems

County level data about septic systems is usually available from the county Environmental Services Department.

A “failing” system is one with a leaky tank or that is less than 3 feet above the seasonally high water table. A system is labeled “imminent threat to public health or safety (ITPHS)” if it is a “straight pipe” emptying directly into a surface water body or if there is leakage of effluent on the soil surface.

V. Sewer systems

VI. Livestock on open lots

Only count animals that are concentrated on open-air loafing or feed lots. Do not include animals on pastures nor animals in covered barns where the manure is not exposed to runoff. Pastureland should be included as part of agricultural acreage.

The “percent of waste exposed to runoff” is the proportion of the day or year that animals are on the lot.

If geese congregate on or near the lake, they may be a significant source of phosphorus. Estimate the number of birds present and the number of days per year they are at the lake.

VII. Permitted dischargers

Include municipal or industrial waste dischargers which have an NPDES (National Pollutant Discharge Elimination System) permit. NPDES permits are public information and available from the MPCA. Look for the discharge limits listed in the source's NPDES permit, additional emergency discharges, and data from the Discharge Monitoring Reports (DMR), which all permittees must submit. Discharge data are available from the PCA Environmental Data Access site at: <http://www.pca.state.mn.us/data/eda/>

VIII. Other phosphorus sources

If you have in-stream sediment loading data from a monitoring program, the PSAT will estimate what proportion of the load comes from stream bank erosion vs. other sources.

Road sanding is generally not a source of phosphorus, but some government units may use sand with a high P content. Contact your local highway department for information.

Direct human waste into a lake is also generally not an issue, but it may be a significant source of P in a few special situations.