

# Assisting MS4 permittees with WLA documentation

*2024 National Training Workshop on Water Quality Assessment and Plans*

*Session: Developing TMDLs in ways that lead to more  
seamless collaboration and implementation*

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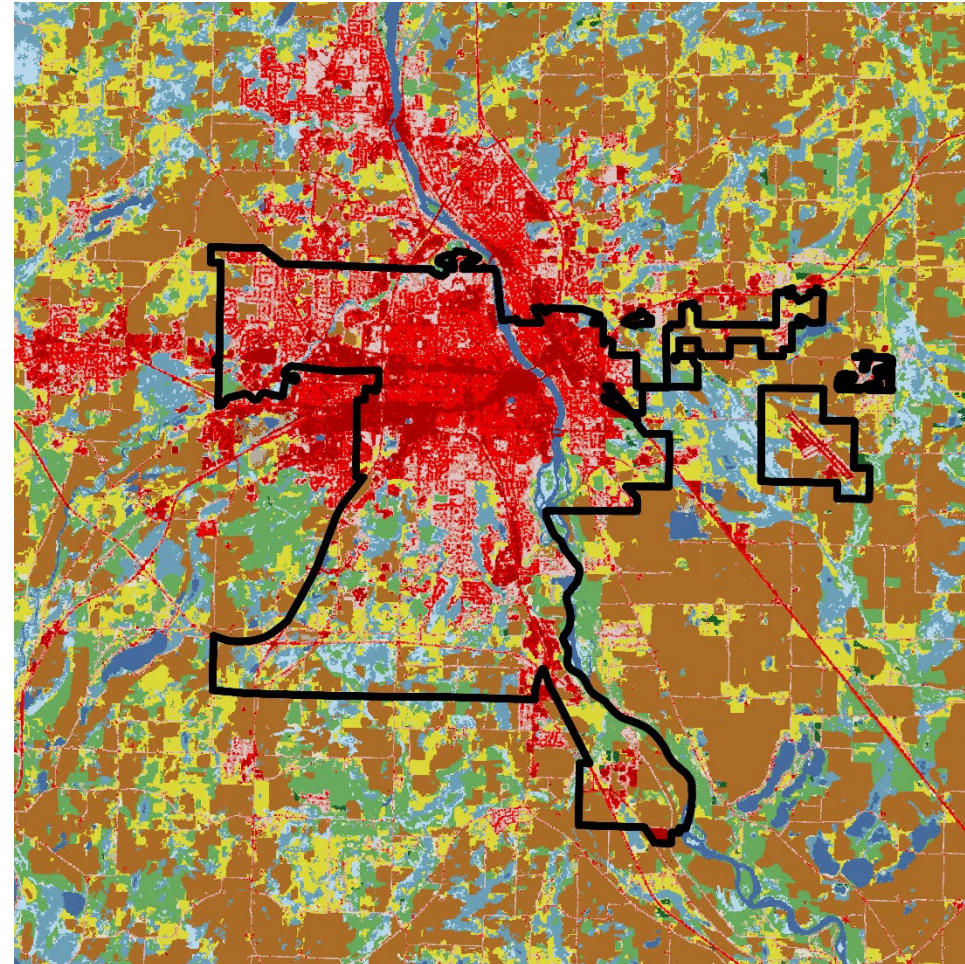
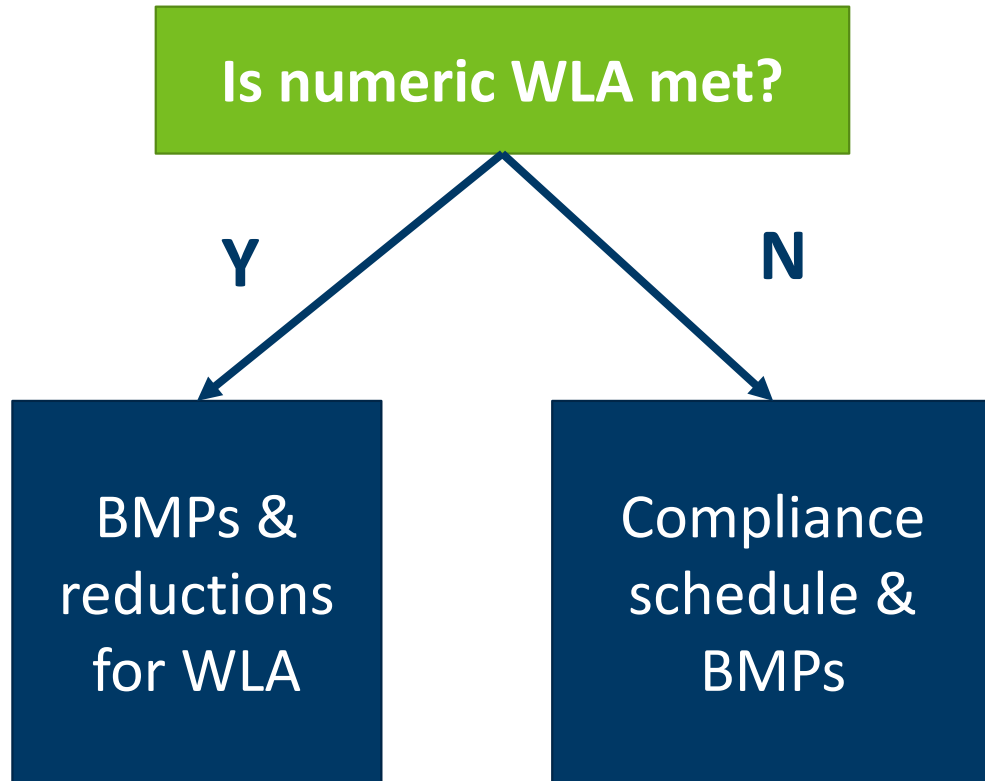
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# Assisting MS4 permittees with WLA documentation

- Background: 2020 MS4 permit
- MS4 WLAs in MN: challenges and potential solutions
- Guidance for MS4s: Fairmont Chain of Lakes TMDL



	2006	2013	2020
# statewide approved TMDLs	48	339	1,576
# MS4s w/WLAs	~30	126	216
WLA compliance approach	Permittee checks 303(d) list, determines compliance, adjusts SWPPP as needed	MPCA provides WLA list spreadsheet; permittee lists WLAs, states whether meeting WLA; and lists BMPs (interim milestones as applicable)	<u>BMP implementation:</u> <i>E. coli</i> bacteria, chloride, temperature <u>Numeric implementation:</u> TP, TSS, oxygen demand, nitrate



# MS4 WLA challenges

## Challenges

In some cases...

1. MS4 WLAs apply to regulated stormwater conveyance areas that aren't well-defined in TMDL report
2. MS4 WLAs are unrealistic to achieve
3. MS4s have limited resources to evaluate and report on WLAs

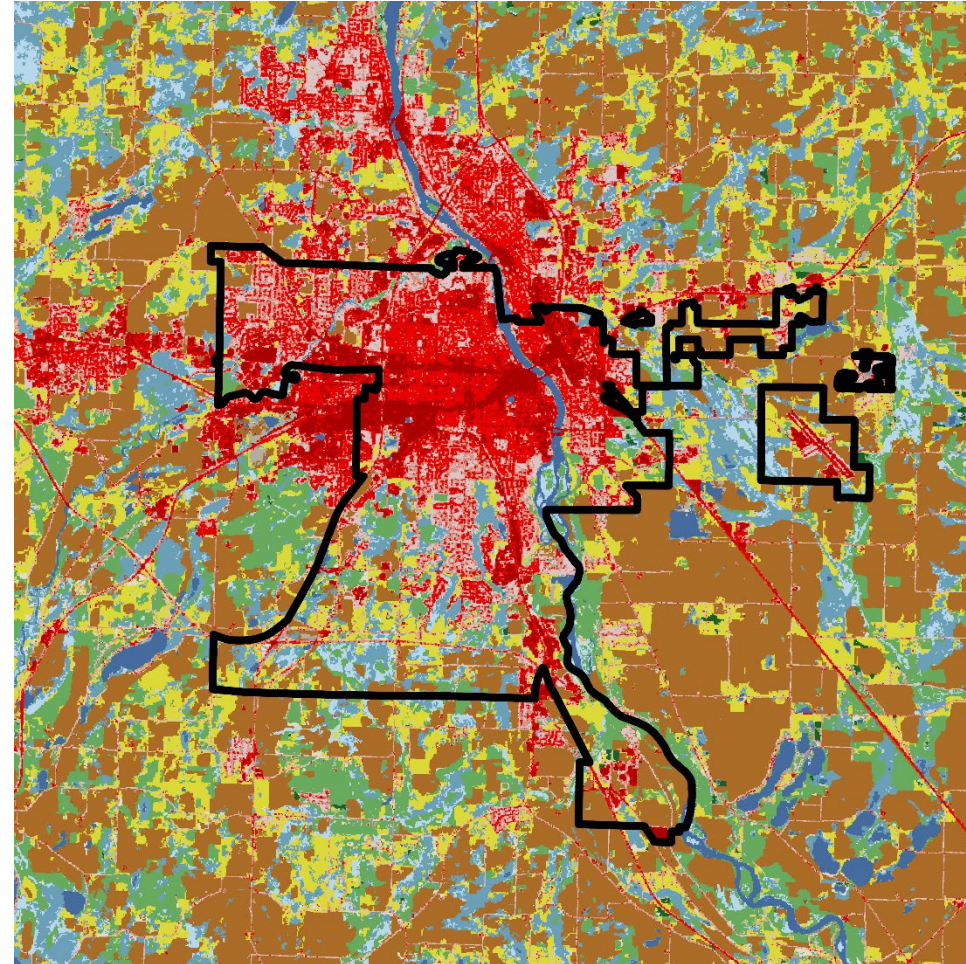
## Solutions (potential)

1. MS4 WLAs calculated for entire jurisdictional area of city
2. Evaluate WLA feasibility at time of TMDL development and express as pollutant runoff concentration or unit area load
3. Provide guidance to MS4s for evaluating WLAs

# Approaches to delineating MS4-regulated areas

## Cities and townships

- Entire jurisdictional area
- Approximate the area with regulated stormwater conveyance using land cover data: impervious or developed area



# Evaluate WLA feasibility and express differently

- Provide alternative expression of MS4 WLA (mass/yr)
  - Concentration (mass/volume)  
e.g., 150 µg/L TP
  - Unit area load (mass/area-yr)  
e.g., 154 lb/ac-yr TSS
- Evaluate feasibility

Table 56. Lake Wilhelm (86-0020-00) phosphorus TMDL summary.

TMDL Parameter	TMDL TP Load		
	lb/yr	lb/day	
Load allocation (internal loading and atmospheric deposition)	94	0.26	
WLA for construction stormwater (MNR100001)	0.22	0.00060	
WLA for industrial stormwater (MNR050000 and MNG490000)	0.22	0.00060	
WLA for MS4 <sup>a</sup>	St. Michael	89	0.24
	Hanover	0.82	0.0022
Margin of safety	21	0.056	
Loading capacity	205	0.56	
Other			
Existing load	645	1.8	
Percent load reduction	68%		

a. The WLAs for MS4s, construction stormwater, and industrial stormwater **equate to an aerial phosphorus loading rate of 0.20 lbs/acre/year**. MS4 areas at the time of this TMDL report were 439 ac in St. Michael and 4.1 acres in Hanover.

# MS4 WLA guidance for documentation of compliance

- Provide more background on alternative expression of WLA
- Provide model / tool inputs
- Compare WLA with previous WLAs for same city and pollutant

## Fairmont Chain of Lakes TMDL

Blue Earth River Watershed  
TMDL report

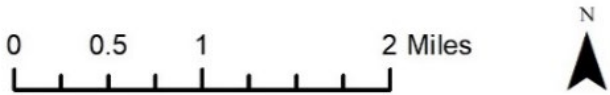
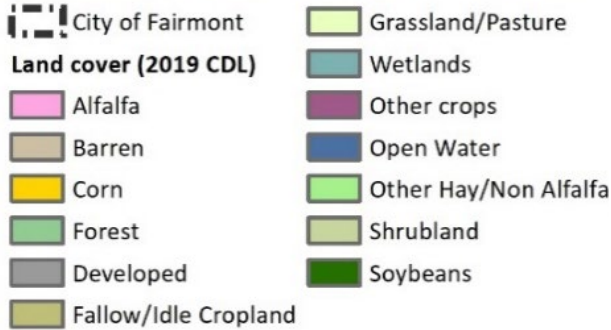
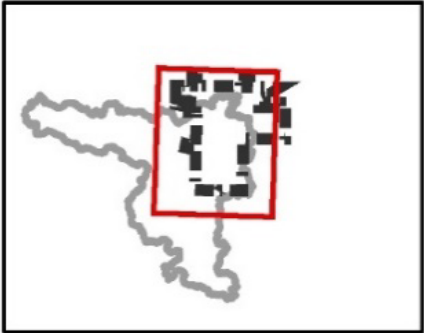
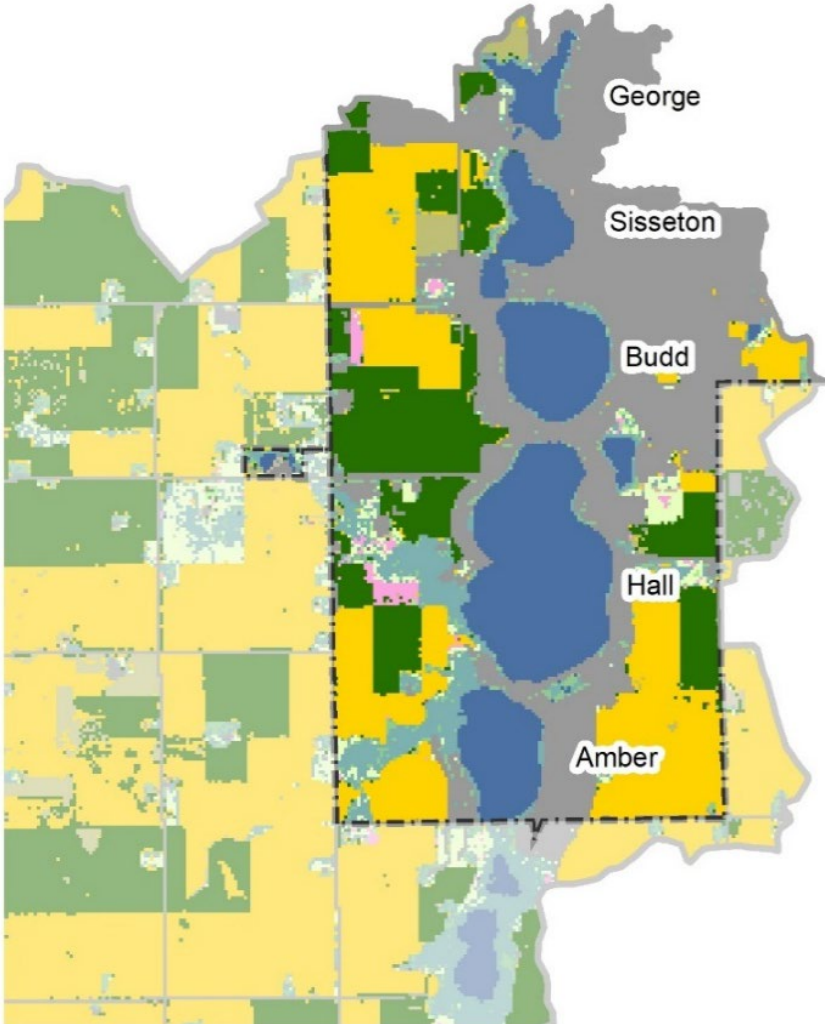
### Appendix D. Guidance for documentation of compliance with MS4 TP WLA for the City of Fairmont

#### Permit overview

This supplement to the *Blue Earth River Watershed TMDL Report* is to assist the City of Fairmont with future MS4 General Permit reapplications. Assuming the current 2020 MS4 General Permit requirements remain the same or similar for TP WLAs in the 2025 MS4 General Permit, during the 2025 General Permit reapplication, the city must determine if they are meeting their assigned TP WLA for the Fairmont Chain of Lakes.



# Example: Fairmont Chain of Lakes phosphorus TMDL



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## Fairmont Chain of Lakes phosphorus TMDL summary

TMDL parameter		Existing TP load	TMDL TP load		Estimated load reduction	
		lb/season <sup>a</sup>	lb/season	lb/d	lb/season	%
Willmert Lake <sup>b</sup>		602	579	2.4	23	4%
LA	Watershed runoff (unregulated)	10,432	7,631 <sup>c</sup>	32	2,801	27%
	Internal recycling / unidentified (to George Lake)	3,381	0	0.0	3,381	100% <sup>c</sup>
	Atmospheric deposition	439	439	1.8	0	0%
WLA	Watershed runoff, city of Fairmont MS4 (MS400239) <sup>d</sup>	2,390	1,855 <sup>e</sup>	7.7	535	22%
	Construction stormwater (non-MS4 area)	25	25	0.10	0	0%
	Industrial stormwater (non-MS4 area)	25	25	0.10	0	0%
MOS			776	3.2		
Total load		17,294	11,330	47	6,740 <sup>f</sup>	39%

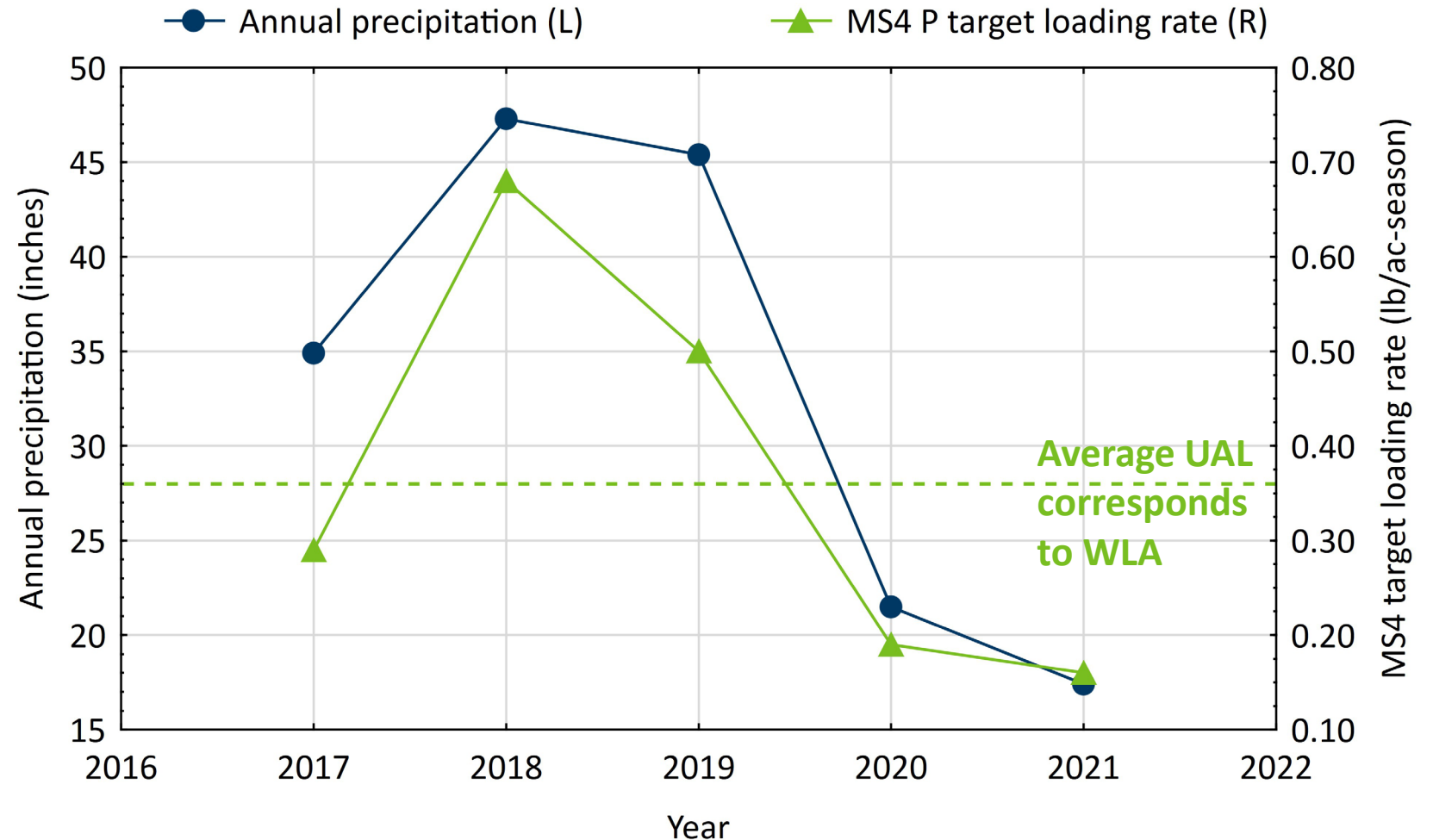
<sup>d</sup> Includes developed and agricultural areas in the city boundary in addition to permitted construction and industrial stormwater.

<sup>e</sup> Assumes a TP watershed runoff concentration of 183 µg/L. See Section 4.5.4.2 and Appendix D for more information about the MS4 WLA.

# WLA target options

- Concentration:  
183  $\mu\text{g/L}$  (TMDL table)
- Translate into unit area load
  - Varies by precipitation

**Use same model  
period precipitation  
inputs**



- Precipitation from TMDL model time period (2017–2021)
- Simple Estimator



Minnesota Stormwater Manual

**Guidance and examples for using the MPCA Estimator**

[https://stormwater.pca.state.mn.us/index.php/Guidance\\_and\\_examples\\_for\\_using\\_the\\_MPCA\\_Estimator](https://stormwater.pca.state.mn.us/index.php/Guidance_and_examples_for_using_the_MPCA_Estimator)

- Compare Fairmont Chain of Lakes MS4 P WLA to approved TMDLs on other waters
  - Lake Pepin TMDL: 0.35 lb/ac-yr P, 1985–2006 average rainfall
    - Prelim analysis: Lake Pepin WLA more stringent than Chain of Lakes WLA
  - Lower Minnesota R Dissolved Oxygen TMDL: 30% load reduction from 1988 low flow
    - Precipitation from August and September 1988

# Thank you!

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