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Setting Wasteload Allocations in a TMDL

wq-strm7-84a

Stormwater Module 4b

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Training Goals

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1. Define wasteload allocation (WLA)
2. Understand the relationship between stormwater and the TMDL wasteload allocation
3. Understand what the wasteload allocation encompasses
4. Understand what language a TMDL should have regarding the wasteload allocation for permitted stormwater

The Issue

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TMDL sets a WLA for point sources, including stormwater

SWPPP must translate the WLA into “on the ground” stormwater management requirements

The challenge is to ensure that the TMDL provides clear, concise language that can easily be incorporated into SWPPPs

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1. WHAT IS A WASTELOAD ALLOCATION (WLA)?

What is a Wasteload Allocation?

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- The wasteload allocation is the pollutant load allocated to current and future point sources (includes NPDES permitted entities)
- TMDL = **WLA** + LA + MOS + RC

  - **WLA = point sources, including NPDES**
  - LA = non-permitted sources (nonpoint sources)
  - MOS = margin of safety (accounts for uncertainty in estimates of WLA and LA)
  - RC = reserve capacity (allows for future growth)

Who gets a WLA?

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- NPDES-regulated discharges must be part of WLA. This includes discharges covered under municipal, construction, industrial, and individual permits.
- Non-NPDES discharges may be assigned to the WLA if
  - Future discharges will be covered by an NPDES permit
  - reasonable assurances are provided by an NPDES permittee that the WLA will be met

Types of WLAs

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- Categorical – multiple entities get the same WLA
- Individual – individual entities get different WLAs
- De minimus – loads from individual entities are considered to be insignificant. EPA interprets de minimus loads as zero.

Example of types of WLAs

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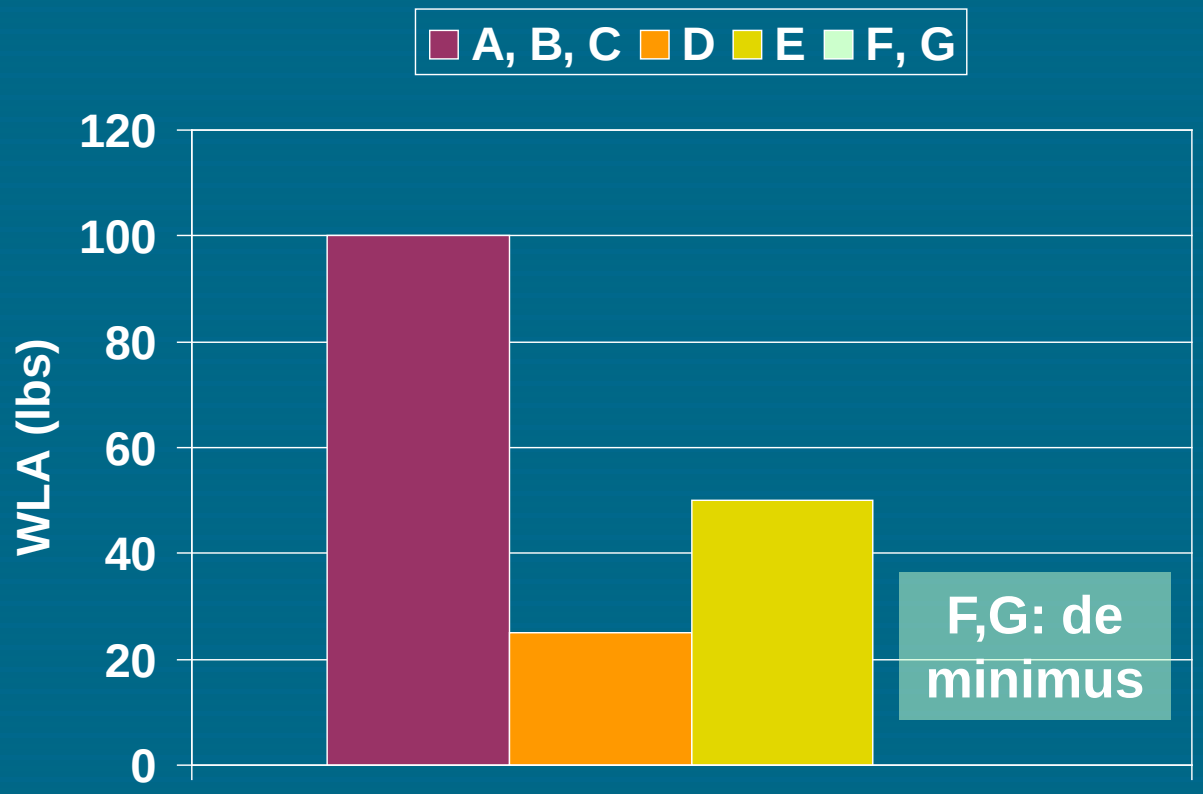
In the chart at the right, MS4s A, B, and C have the same (categorical) WLA, D and E have individual WLAs, and F and G are given de minimu. Because of EPA interpretation, the WLAs for F and G are zero.



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2. WLAs FOR THE DIFFERENT STORMWATER COMPONENTS

WLAs for construction stormwater

- For turbidity, eutrophication, dissolved oxygen, and biotic impairments, construction stormwater must get a WLA
- The WLA should be categorical. If all regulated construction stormwater discharges to NPDES-permitted conveyances, construction stormwater can be part of a WLA that includes all regulated stormwater. Otherwise, construction stormwater should receive its own WLA.
- The TMDL should state "Construction storm water activities will be considered in compliance with provisions of the TMDL if they obtain a Construction General Permit under the NPDES program and implement the appropriate Best Management Practices."

WLAs for industrial stormwater

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- If the pollutant of impairment is on a benchmark sampling list for industrial stormwater, industrial stormwater must get a WLA
- The WLA should be categorical. If all regulated industrial stormwater discharges to NPDES-permitted conveyances, industrial stormwater can be part of a WLA that includes all regulated stormwater. Otherwise, industrial stormwater should receive its own WLA.
- The TMDL should state "Industrial storm water activities will be considered in compliance with provisions of the TMDL if they follow conditions of the permit and implement the appropriate Best Management Practices."

Regulated (Permitted) MS4s

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- A TMDL must identify all permitted MS4s
- A TMDL must assign a WLA to each MS4, either:
  - Categorical (multiple MS4s get same requirement)
  - Individual (individual MS4 WLAs)
  - or a combination of these

- **NOTE: EPA interprets de minimus WLAs to be equivalent to a WLA of 0. De minimus WLAs are therefore not allowed.**

Permitted MS4s

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- WLA goal for permitted MS4s should be same as LA goal for non-permitted MS4s unless data supports having different WLAs
  - If different, Reasonable Assurance section must contain language explaining the difference

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3. EXPRESSING THE WLA

Preferred form of the WLA

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- The preferred form of the WLA for MS4 stormwater is as a percent reduction from a defined baseline.
- The baseline must include a year and may include other information, such as BMPs that will not be credited (because they were considered in the allocations).
- The form of the WLA for construction and industrial stormwater is unimportant since compliance with the permit is required for these.

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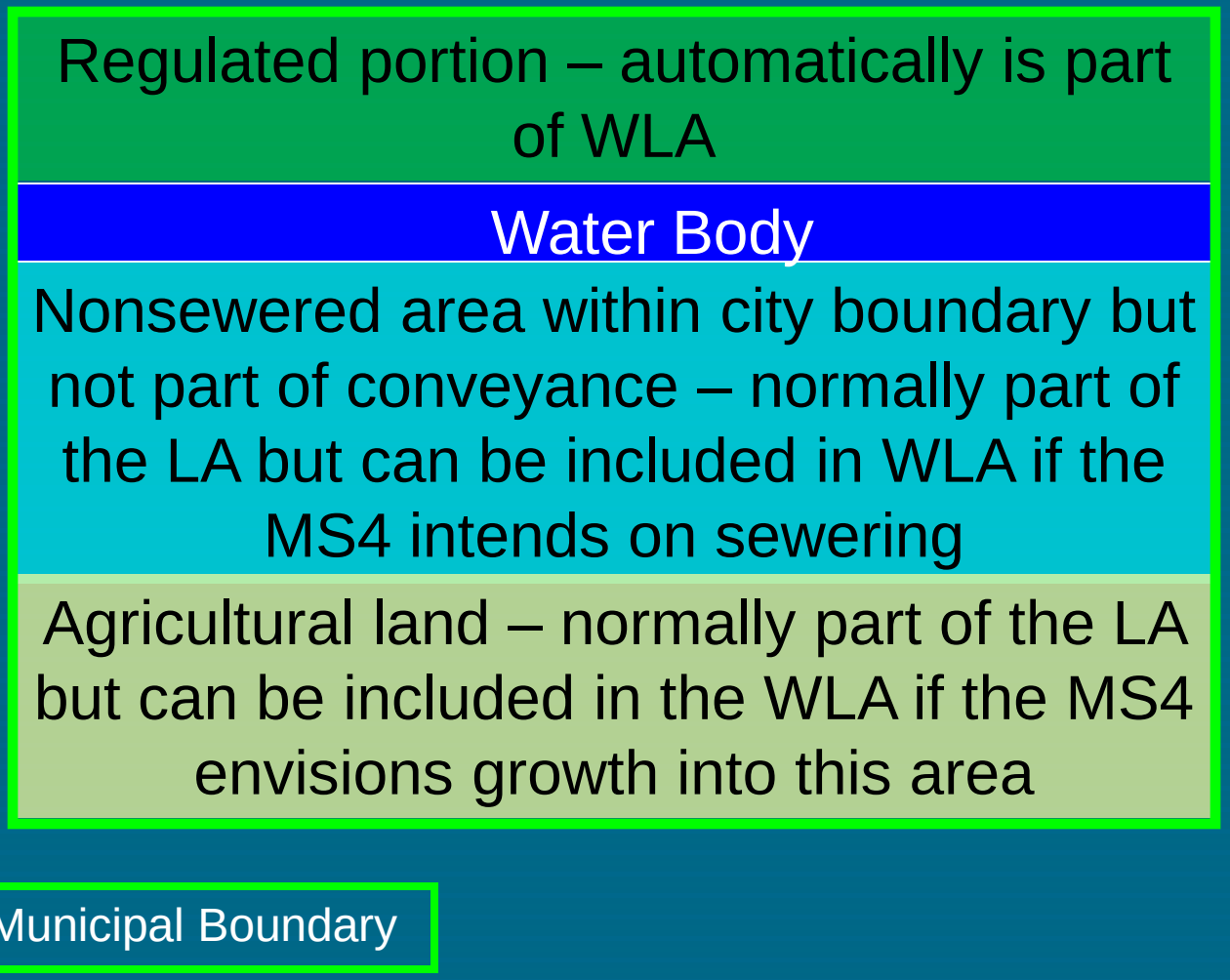
4. ACCOUNTING FOR FUTURE LOADS AND FUTURE GROWTH

Incorporating nonpoint sources into the WLA – future loads and future growth

- WLA can include nonpoint sources not covered by an NPDES permit if
  - There will be NPDES coverage in the future

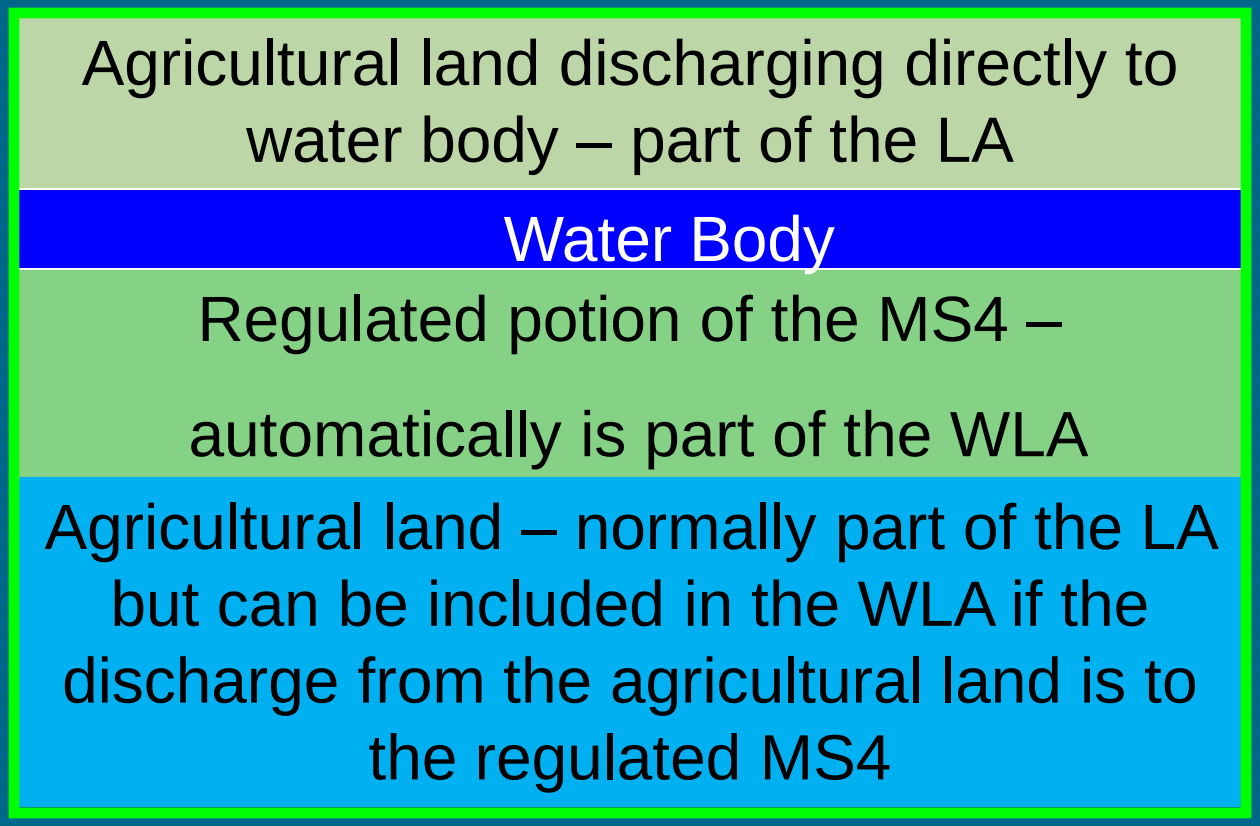
  or
  - Reasonable assurances can be given that WLA will be achieved

Future NPDES discharges can be part of the WLA



This figure illustrates two scenarios where the WLA can include load that normally is part of the LA

Reasonable assurance - Non-regulated sources are in WLA if discharge is to a regulated conveyance



The MS4 is responsible for what is in its conveyance and has authorities to cover discharges to its conveyance system

Future Growth – areas to be urbanized in future should be included in the WLA

Regulated portion – automatically is part of WLA

Area currently in agriculture but projected to be urban by 2030 (using land use plans) – put into the WLA

Agricultural land that is projected to remain in agriculture by 2030 (using land use plans) – put into the LA

Municipal Boundary

- Base WLA on growth projections (e.g. land use plans)
- Include growth in WLA, not a separate Reserve Capacity

Future Loads – non-regulated entities can get a WLA if they significantly contribute to impairment

Regulated portion – automatically is part of WLA

Area currently in agriculture but projected to be urban by 2030 (using land use plans) – put into the WLA

Mixed land outside regulated MS4 is not projected to urbanize but contributes 25% of total load – give an individual WLA

Municipal Boundary

- WLA must be individual
- "Significant" is not defined; at least 5% of total load

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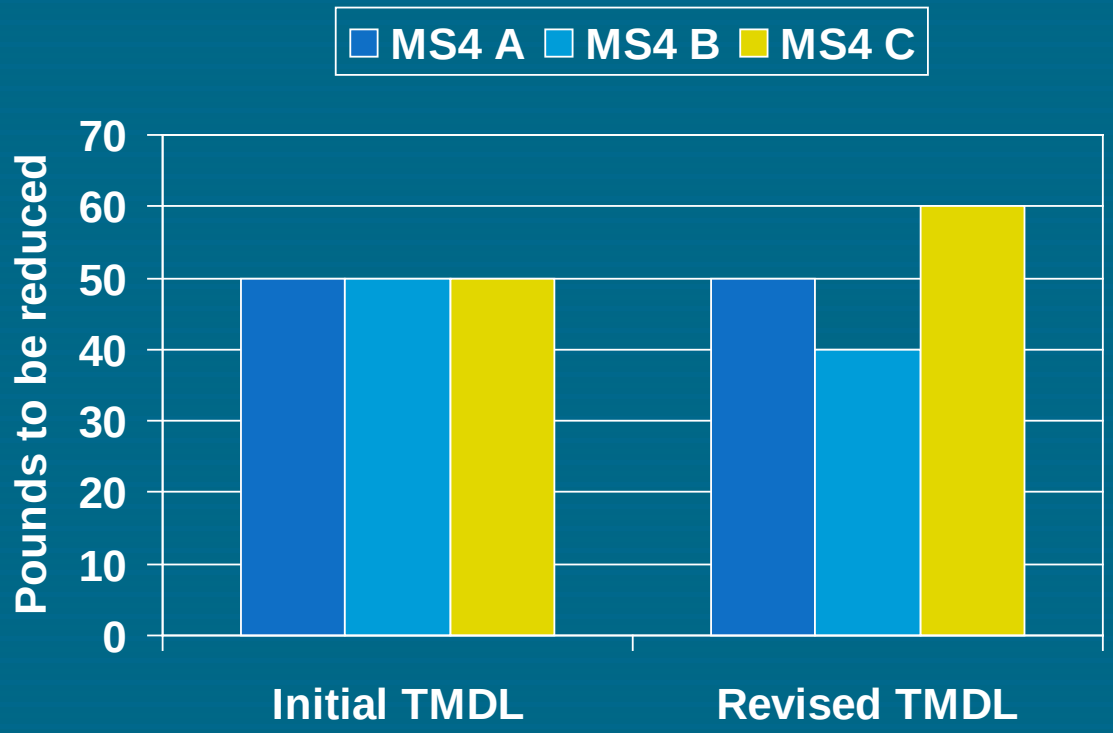
5. ADJUSTING WLAs

Individual WLAs can be adjusted after TMDL is complete



- Ex: based on new data, revised TMDL increases requirement for MS4 C and decreases for MS4. Overall WLA stays the same.
- Revision does not require public noticing, but MS4s must be informed of the change

CASE EXAMPLES

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The following examples illustrate some of the concepts presented

WLAs for different sectors
Lower MN River Low Flow DO TMDL

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- Point sources and NPDES stormwater make up the WLA
- Remaining sectors make up the Load Allocation

	Ag	Non–compliant ISTS	Under-treated Comm-unities	Point Sources	NPDES Storm-water	Other Storm-water	Other Natural and Back-ground Sources	Total
Total	178.8	5.6	4.4	381.3	30.5	147.5	3.8	752.0

Different WLAs for permitted and non-permitted MS4s

- Concerns
  - question of equity
  - what is requirement for a non-permitted MS4 when it becomes a permitted MS4

Urban stormwater	
Permitted entities (MS4, construction, industrial)	30 percent reduction in phosphorus by 2025.
Communities below permitted MS4 thresholds	20 percent reduction in phosphorus by 2025.

Source: Lower Minnesota River Low Flow Dissolved Oxygen TMDL

Individual WLAs for construction and industrial stormwater

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- WLA is categorical
- WLA is mass per unit time
- Concerns
  - hard to divide WLA among different entities
  - could limit construction activity at any point in time

Source: SAN GABRIEL RIVER METALS TMDL California Regional Water Quality Control Board Los Angeles Region March 2006

Metal	Flow (cfs)	Daily Storm Volume (liters)	General Construction (kg/day)	General Industrial (kg/day)	MS4 and Caltrans (kg/day)
San Gabriel Reach 2 and upstream reaches and tributaries					
Lead	260	6.4×10^8 liters	1.2	2.9	52
Coyote Creek and tributaries					
Copper	156	3.8×10^8 liters	0.29	0.20	5.2
Lead	156	3.8×10^8 liters	1.5	1.0	28
Zinc	156	3.8×10^8 liters	2.4	1.7	44

Categorical WLA for MS4s Mississippi River fecal coliform

- Concerns
  - How to distribute load among 4 different permitted MS4s
  - treats all loading equally and doesn't account for "hotspots"
- Solution: Give WLA as a reduction or as number of organisms per unit area

Drainage Area (square miles):	957					
USGS gage used to develop flow zones and loading capacities: Cannon River at Welch						
% MS4 Urban:	4%					
Total WWTF Design Flow (mgd):	18.2328					
		Flow Zone				
		High	Moist	Mid	Dry	Low
		values expressed as trillion organisms per month (tera- or T-org./month)				
TOTAL MONTHLY LOADING CAPACITY		273.01	98.81	46.19	21.84	10.05
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		4.14	4.14	4.14	4.14	4.14
Communities Subject to MS4 NPDES Requirements		6.82	2.47	1.07	0.35	0.11
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		167.38	60.70	26.31	8.56	2.62
Margin of Safety		94.67	31.50	14.67	8.79	3.18

Individual WLAs for MS4s
Lake Independence TMDL

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- WLAs are easily converted to mass per unit area since we know areas of the MS4s
- MN DOT and Carver County were each given de minimus WLAs (not shown in table)
- Needed wasteload reduction is also provided

Phosphorus Loading - Wasteload Allocation (WLA)

Assigned Source	Existing Phosphorus Loading		Waste Load Phosphorus Allocation		Load Reduction (lbs)
	(lbs/year)	(lbs/day)	(lbs/year)	(lbs/day)	
Independence	891	2.44	356	0.95	535
Loretto	69	0.19	16	0.07	53
Medina	515	1.41	231	0.63	284
Total *(external only)*	**1475**	**4.04**	**603**	**1.65**	**872**

Future Growth - Putting nonpoint into the WLA: Potash Brook TMDL, VT

- WLA included all impervious areas greater than or equal to one acre in size, even though many of these were not covered under a Federal permit
- Vermont has a state permit that covers these impervious areas
- The reasonable assurance section of the TMDL contains language on Vermont's permit

Putting nonpoint into the WLA
Lake Independence TMDL

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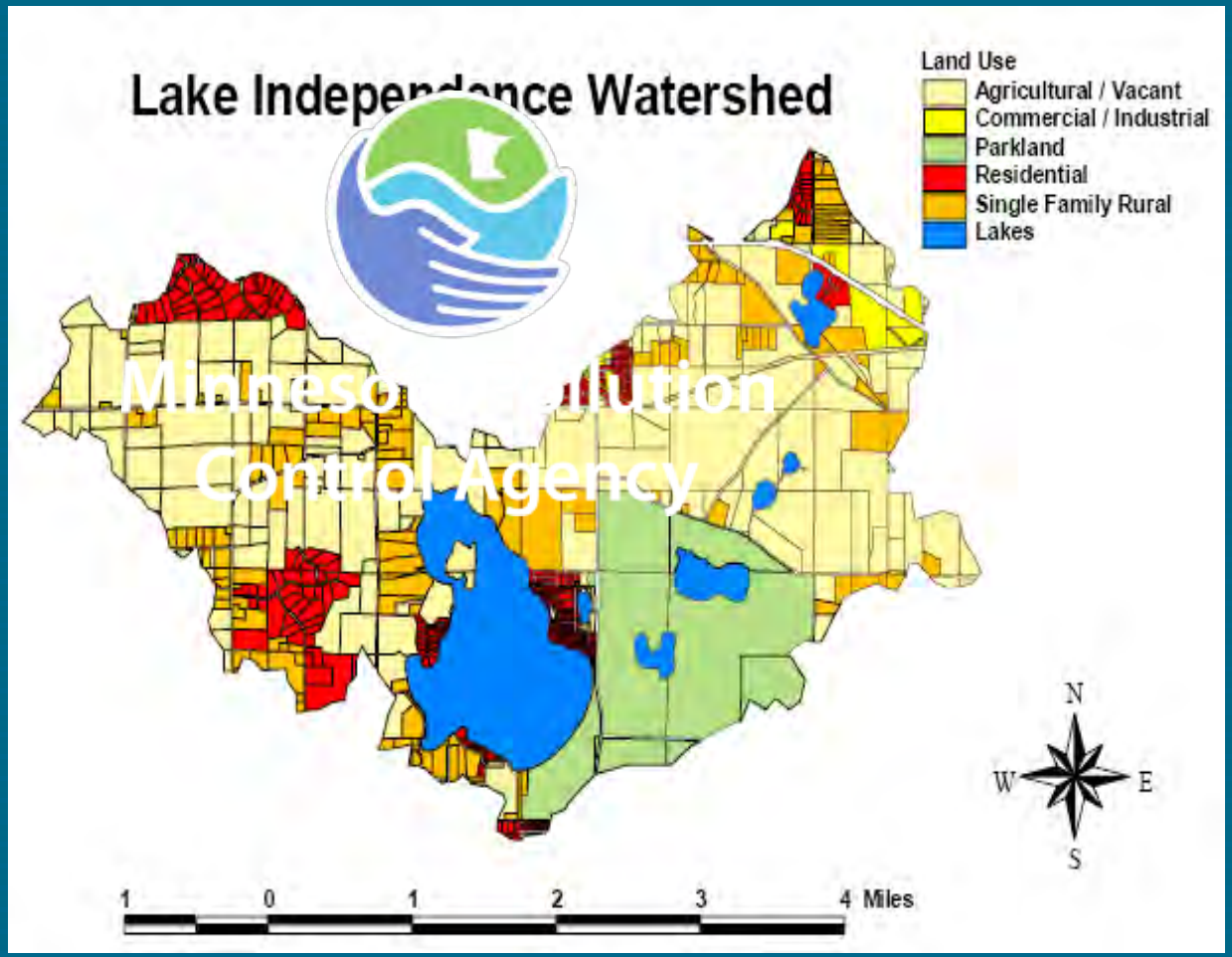

- All load in WLA even though urban makes up small % of watershed
- "In the event that voluntary implementation …does not occur … Medina and Independence will revise existing Conditional Use Permits or Zoning Ordinances to require compliance." (reasonable assurance)

Summary

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- There are a number of issues surrounding setting WLAs for stormwater
- MPCA has developed a set of policy recommendations. These were discussed in this module.
- To find out more, visit http://www.pca.state.mn.us/water/stormwater/impairedwaters.html