

Manure Management on the Urban/Suburban Fringe

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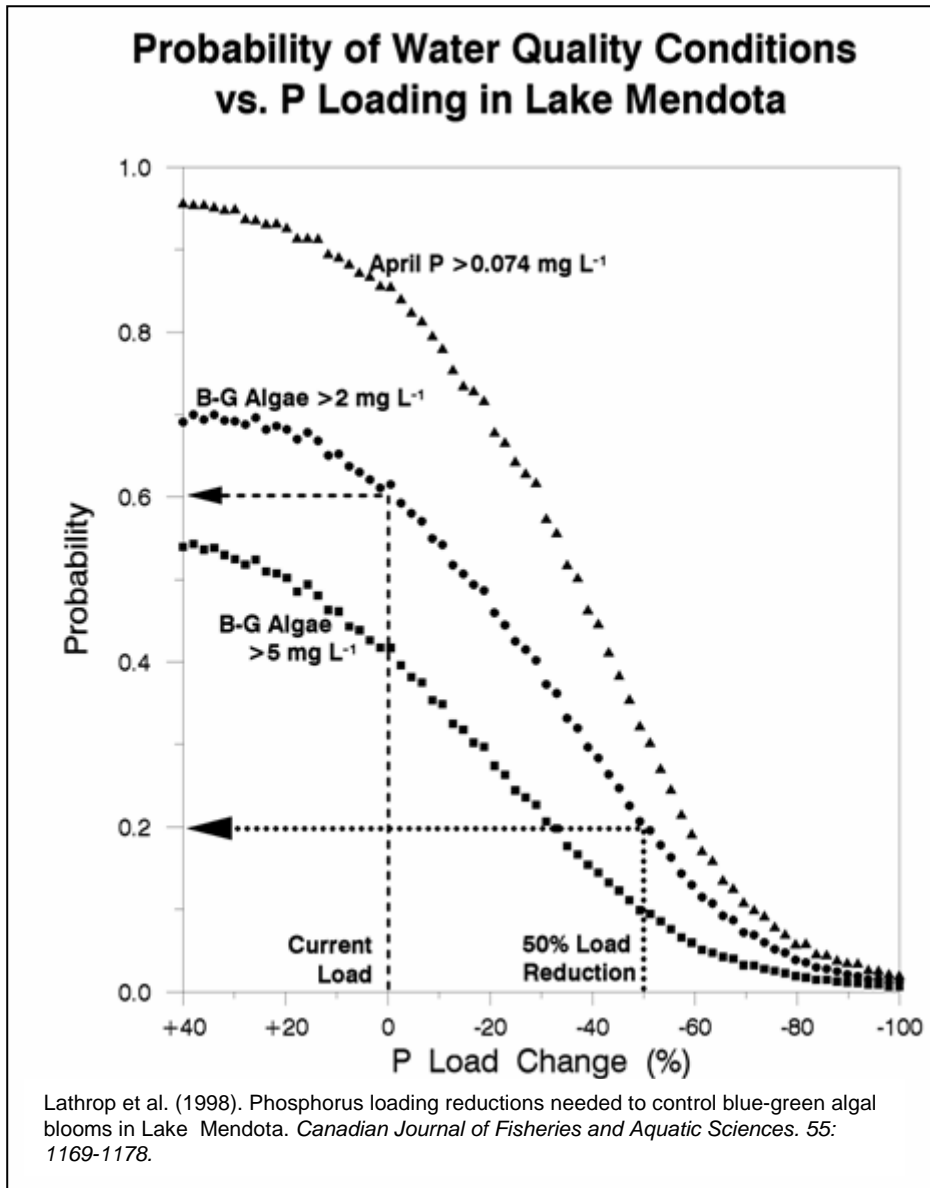
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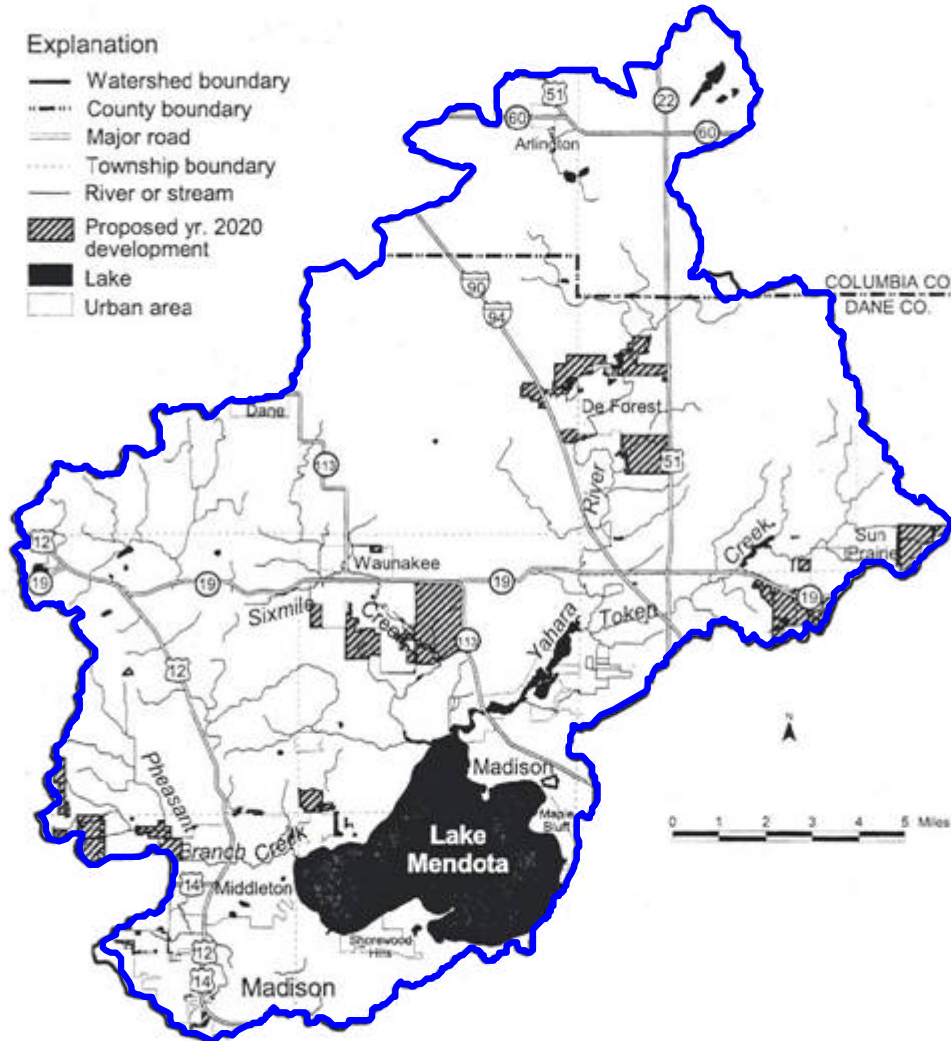
INTRODUCTION



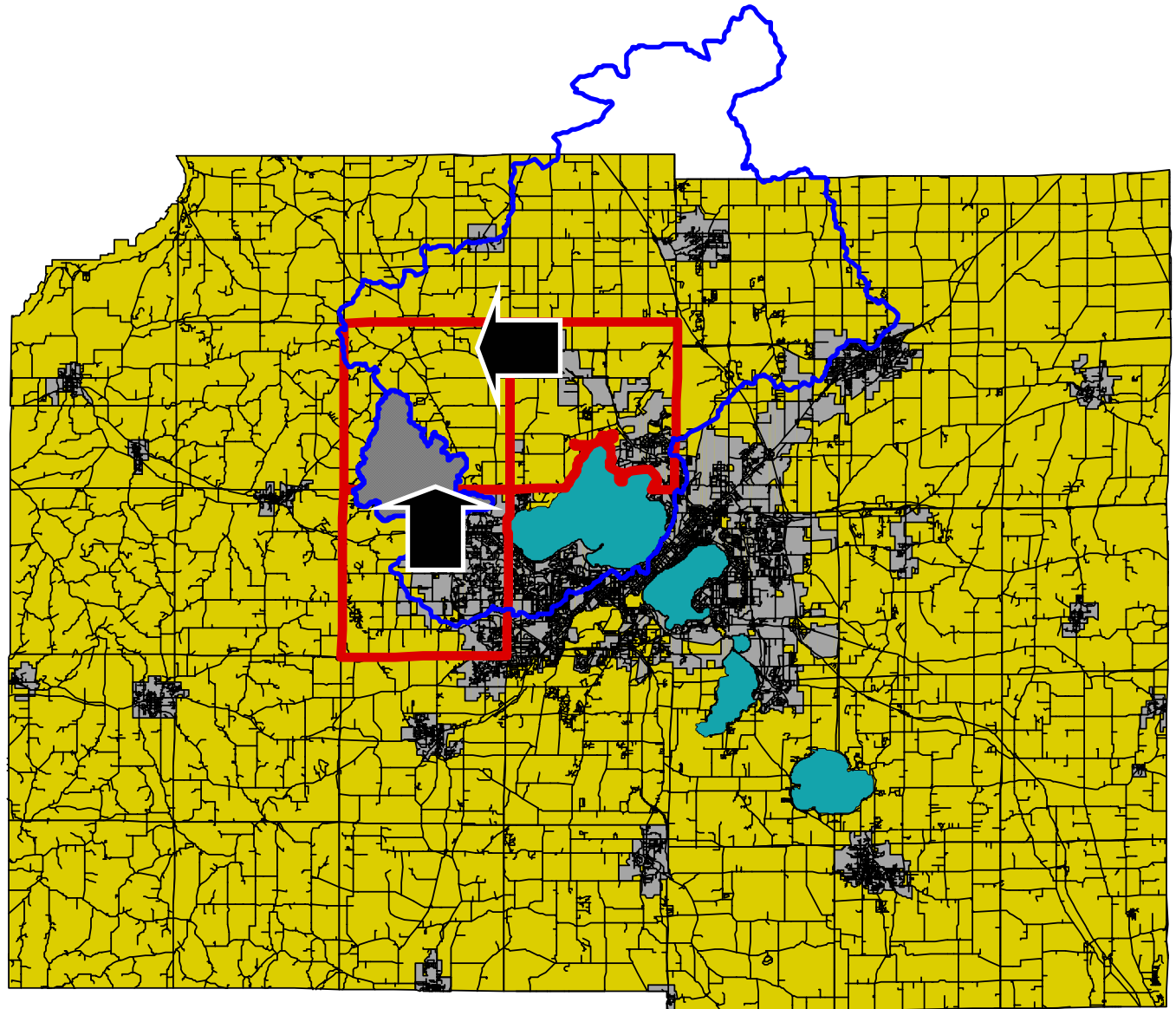
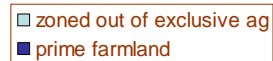
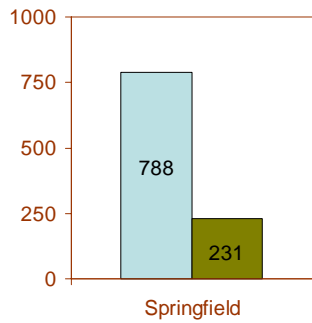
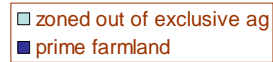
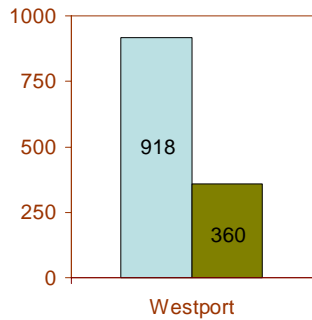
INTRODUCTION



PROPOSED 2020 DEVELOPMENT PATTERN IN LAKE MENDOTA WATERSHED

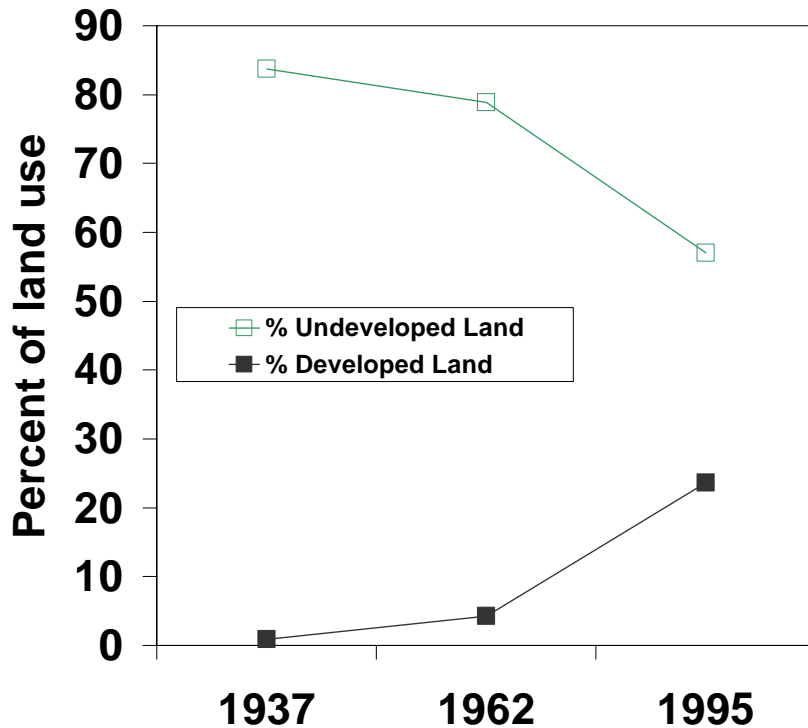
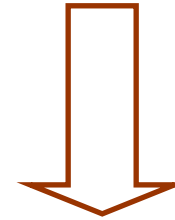


NORTH FOR PHEASANT BRANCH



IMPACT ON LAND BASE

$$\text{Animal Equivalent Unit Density} = \frac{\text{Animal Equivalent Units}}{\text{Land Base}}$$



1. total cropland?
2. potentially available for manure?
3. operated land?
4. reported in nutrient management plan?

OBJECTIVES

- Survey producers operating in urbanizing settings to assess changes in the last 5 years.
- Examine impacts of urban pressures on manure management practices.

SURVEY RESULTS

- 55.9% response rate (overall survey)
- No major differences among respondents and non-respondents (non-respondent bias test):
 - Mean farm acreage ($p = 0.558$)
 - Mean acreage lost to development in the last 5 years ($p = 0.117$).

TRAFFIC PROBLEMS & MANURE HAULING

	Farmer assessment of problem severity*				
	1	2	3	4	5
Weekend traffic on local roads	50%	21%	17%	7%	5%
School bus schedules	81%	16%	0%	0%	3%
Commuter rush hour traffic	40%	24%	16%	7%	13%
Complaints about spilled manure	71%	24%	3%	2%	0%

* (1) = No problem, (2) = Occasional minor problem, (3) = Regular Problem, (4) = Occasional major problem, (5) = Major problem all the time

TRAFFIC PROBLEMS & MANURE HAULING

	Farmer assessment of problem severity*				
	1	2	3	4	5
Spring load-restrictions forcing new route with more traffic	86%	5%	7%	2%	0%
Unsafe traffic conditions	31%	28%	19%	5%	17%
Delays from new signage, stop lights, or construction	67%	19%	9%	5%	0%

* (1) = No problem, (2) = Occasional minor problem, (3) = Regular Problem, (4) = Occasional major problem, (5) = Major problem all the time

CHANGES IN HAULING DISTANCES/TIMES

distance (mi) time (minutes)

most distant field

Rented	1998	2.8 (3.0)	12.8 (11.0)
	2003	3.9(2.3)	14.4 (4.6)
Owned	1998	1.3 (1.1)	8.3 (7.0)
	2003	1.5 (2.0)	8.2 (6.7)

most loads of manure

Rented	1998	0.5 (4.7)	3.3 (2.1)
	2003	3.2 (1.3)	11.7 (2.9)
Owned	1998	0.5 (0.5)	3.5 (1.9)
	2003	0.4 (0.6)	3.4 (2.9)

*Standard deviations in parentheses

CONCERNS OF CASH-GRAIN FARMERS ABOUT MANURE

	Farmer assessment of problem severity*		
	1	2	3
Manure contains too many weed seeds	35%	54%	11%
The manure placement process causes soil compaction	11%	19%	70%
There will be odor and noise complaints	49%	46%	5%
Nutrient crediting from manure is difficult	46%	43%	11%

* (1) = Not a concern, (2) = Minor concern, (3) = Major concern

CHANGES IN AGRICULTURAL PRODUCTION COSTS

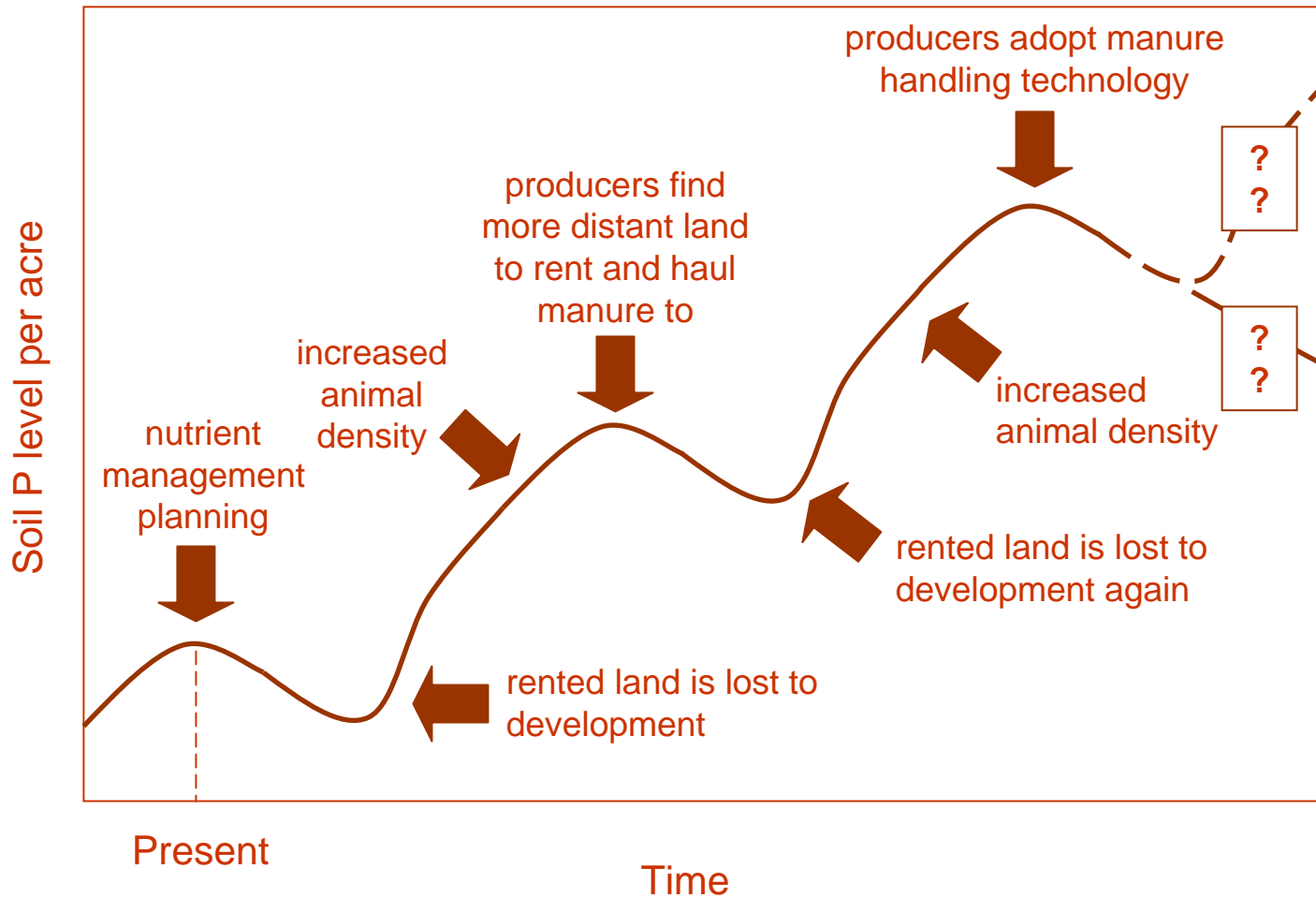
	No change		Increase
Land rental rates	19%	81%	\$36/ac
Land purchase prices	0%	100%	\$1,920/ac
Labor costs	0%	100%	20 hours

LEASE LENGTHS IN YEARS

	Renting-in (tenancy)	Renting-out (landlord)
1998	2.4 (1.5)	2.0 (1.6)
2003	2.1 (1.3)	1.5 (1.2)

*Standard deviation in parentheses

CONCLUSION: CONCEPTUAL MODEL OF URBANIZING PRESSURE IMPACT



END

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