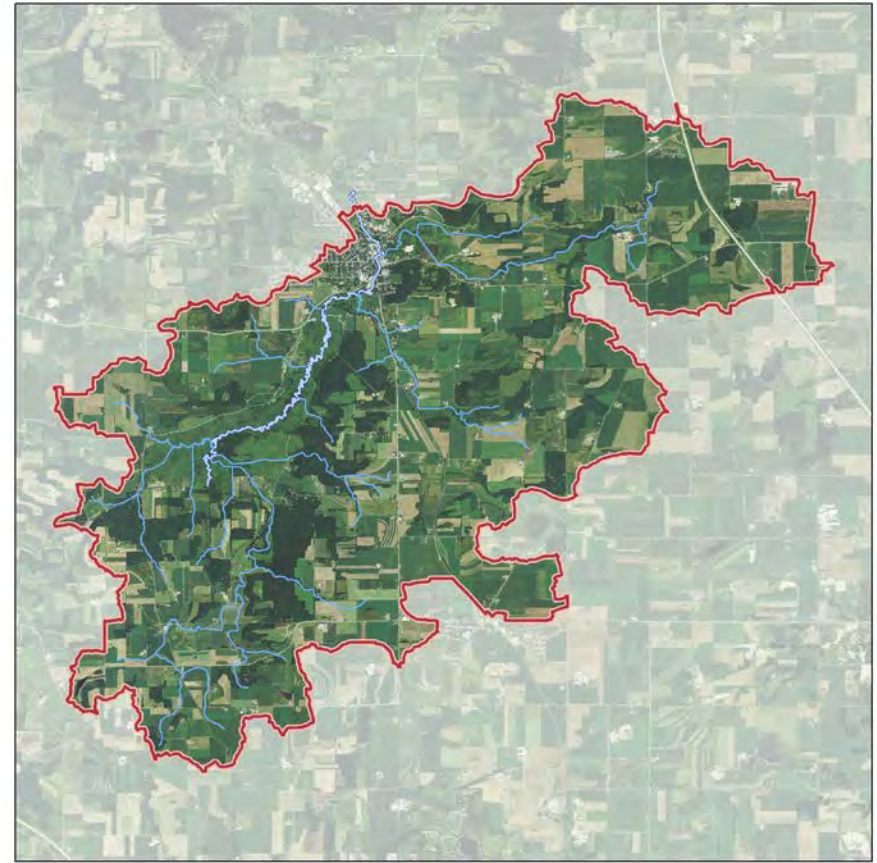


# Adaptive Management Planning for the City of Lodi



WISCONSIN GOVERNMENT AFFAIRS SEMINAR

FEBRUARY 2016



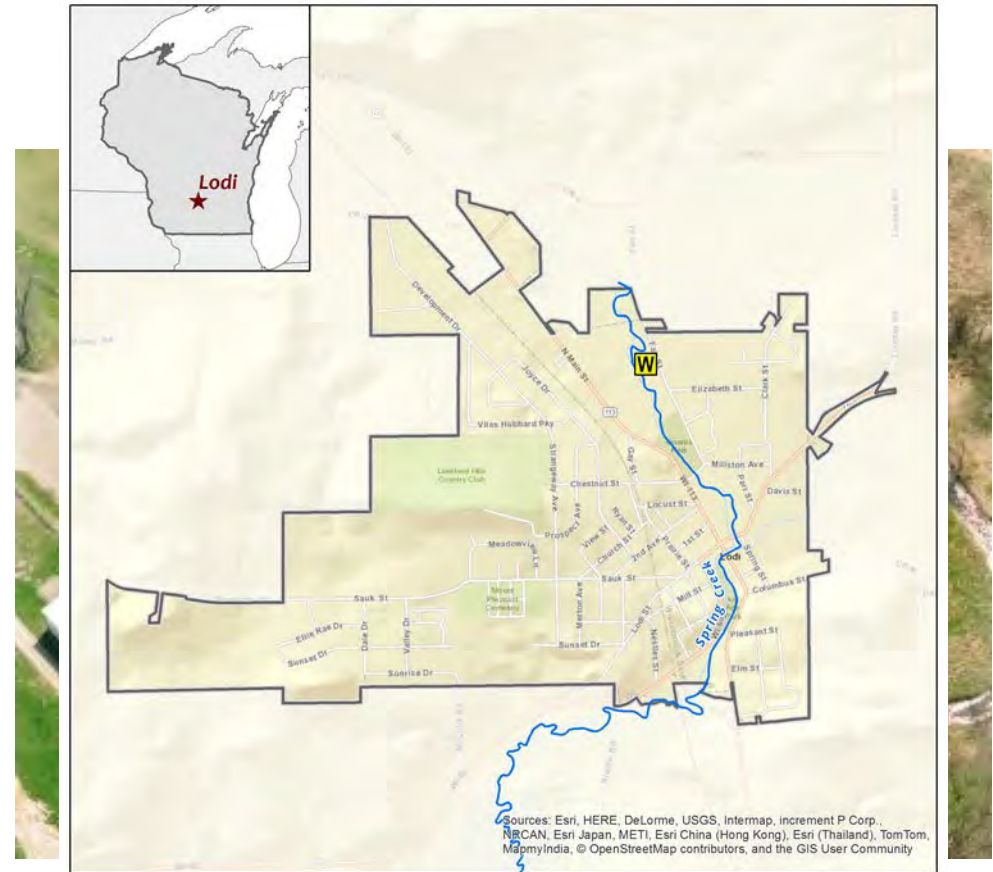
# Background

## » Lodi's WWTF

- Treats 310,000 gal/day
- Design Flow of 546,000 gal/day
- Currently meeting 1 mg/L phosphorus limit

## » Lodi's WPDES Permit

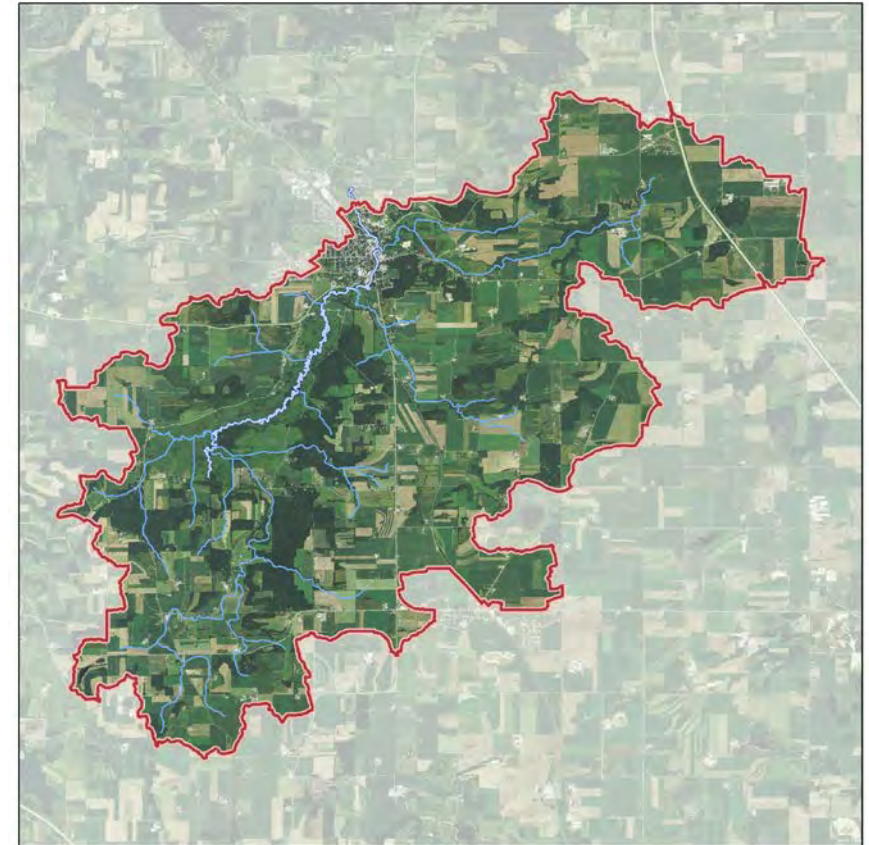
- Reissued 01/01/2012
- Identifies 2020 phosphorus limit as:
  - 0.075 mg/L – annual average
  - 0.22 mg/L – monthly average



# Phosphorus Compliance Options

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- » WWTF treatment upgrades
  - “Point Source Reduction”
  - Microsand-ballasted clarification
  - Capital cost for upgrade: \$3.36 million
  - Compliance by 2020
  
- » Watershed improvements
  - “Non-Point Source Reduction”
  - Adaptive Management or
  - Water Quality Trading



# Phosphorus Compliance Options

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- » Adaptive Management (AM)
  - Compliance by 2037
  - Focus on *stream* compliance
  - Eligibility requirements must be met
- » Water Quality Trading (WQT)
  - Compliance by 2020
  - Focus is on offsetting WWTF's mass of TP
  - “Credits” and “Trade Ratios”
  - No eligibility restrictions

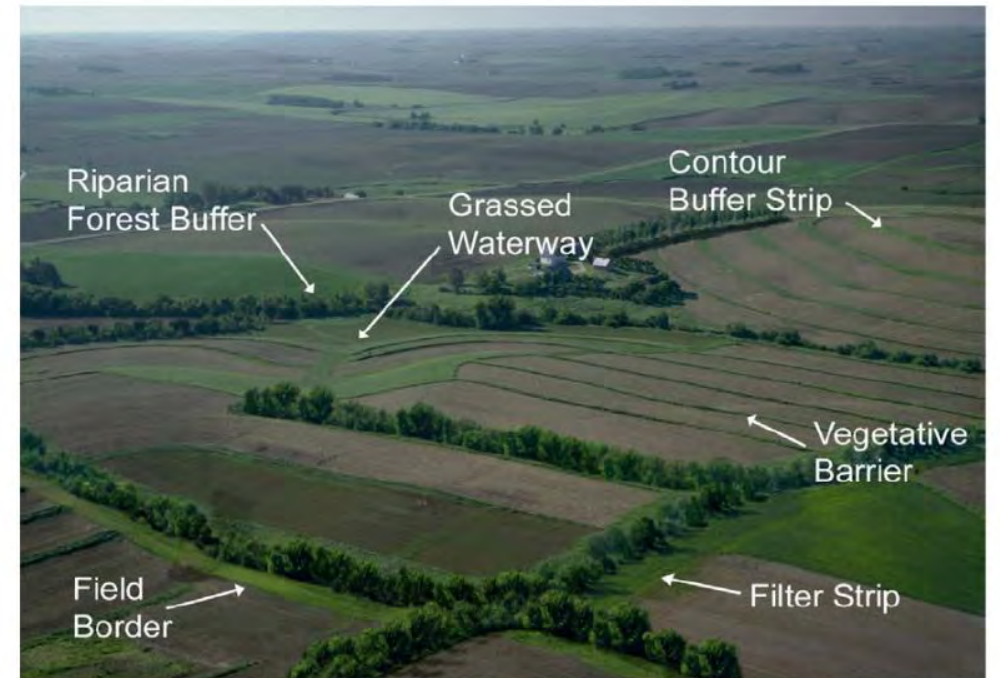


Illustration of several vegetative buffer types (photo courtesy of USDA-NRCS).

# Phosphorus Compliance Options

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Adaptive Management (AM) selected

Projected Preliminary Costs for WWTF Upgrades and Adaptive Management		
	WWTF Upgrade	Adaptive Management
<b>Capital Cost</b>	\$3.36 M	\$2.45 M
<b>Annual O&amp;M</b>	\$50,400	\$22,200
<b>20-year Present Value</b>	\$3.89 M	\$2.85 M

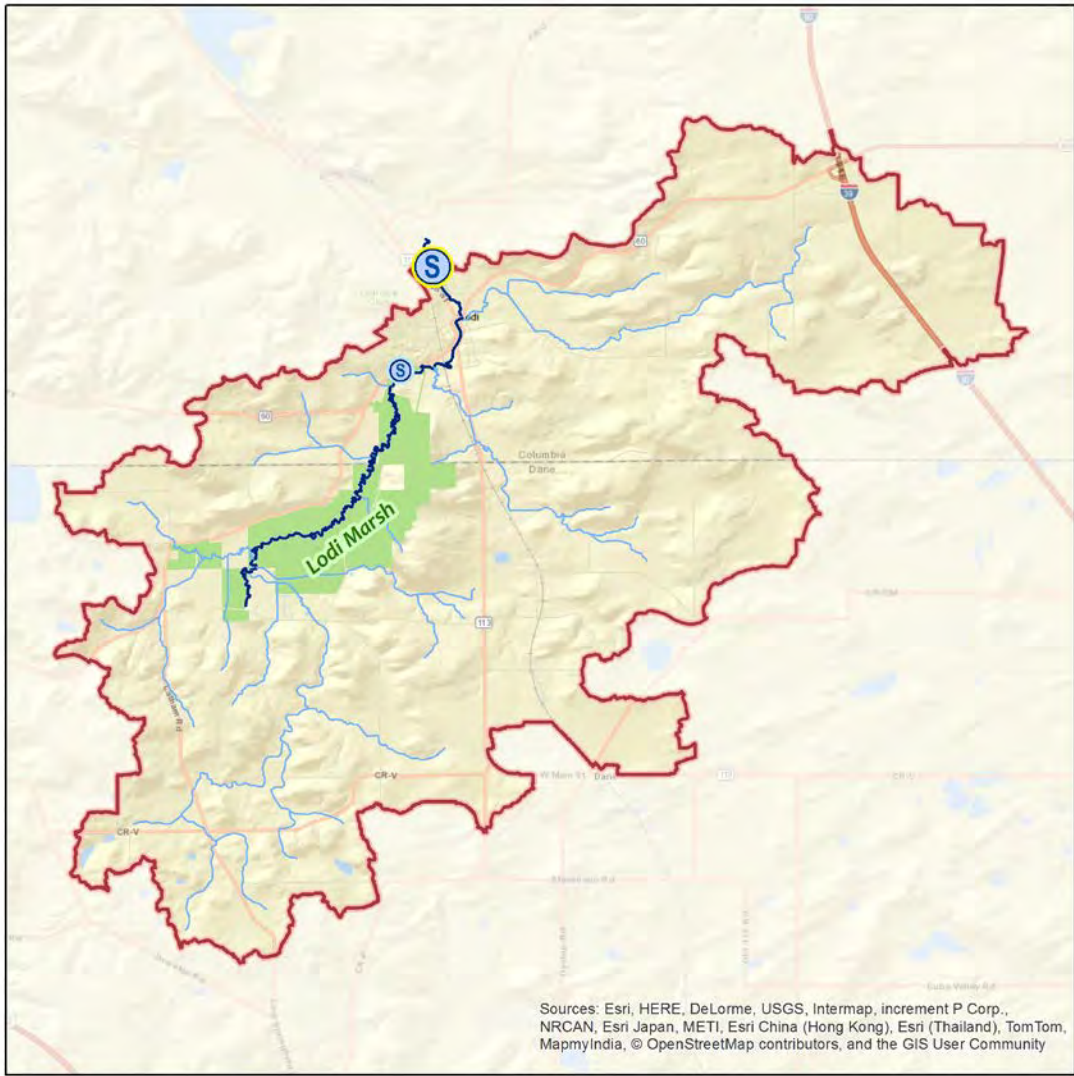
*\*Adaptive Management has a series of 'rules and regulations' that need to be followed. They are nuanced, and will not be discussed at length in this presentation. Come ask us with questions!*

# Phosphorus Compliance Options

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## Adaptive Management (AM) selected

- WWTF is currently 10-15% of annual phosphorus load
- **WWTF discharge limit: 0.5 mg/L**
- Focus is on stream compliance by 2037 (20 years)
  - Spring Creek very close to limit (2011, 2012, 2015 data)
    - › Currently 0.078 mg/L
    - › Target of 0.075 mg/L
- P reductions needed
  - ~ 715 lbs/year @ projected effluent flow in 2035 and final AM term limit
  - ~920 lbs/year @ design flow and final AM term limit



# Preparation of Adaptive Management Plan

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## Critical Source Areas

### » Urban

- WinSLAMM modeling
- Improving efficiency of existing ponds
- Identifying new potential ponds
- *Currently finalizing recommendations*

### » Agricultural, Hard Practices

- Barnyard Analysis
- Columbia County assessed all of the barnyards in the watershed
- Economic assessment for best projects

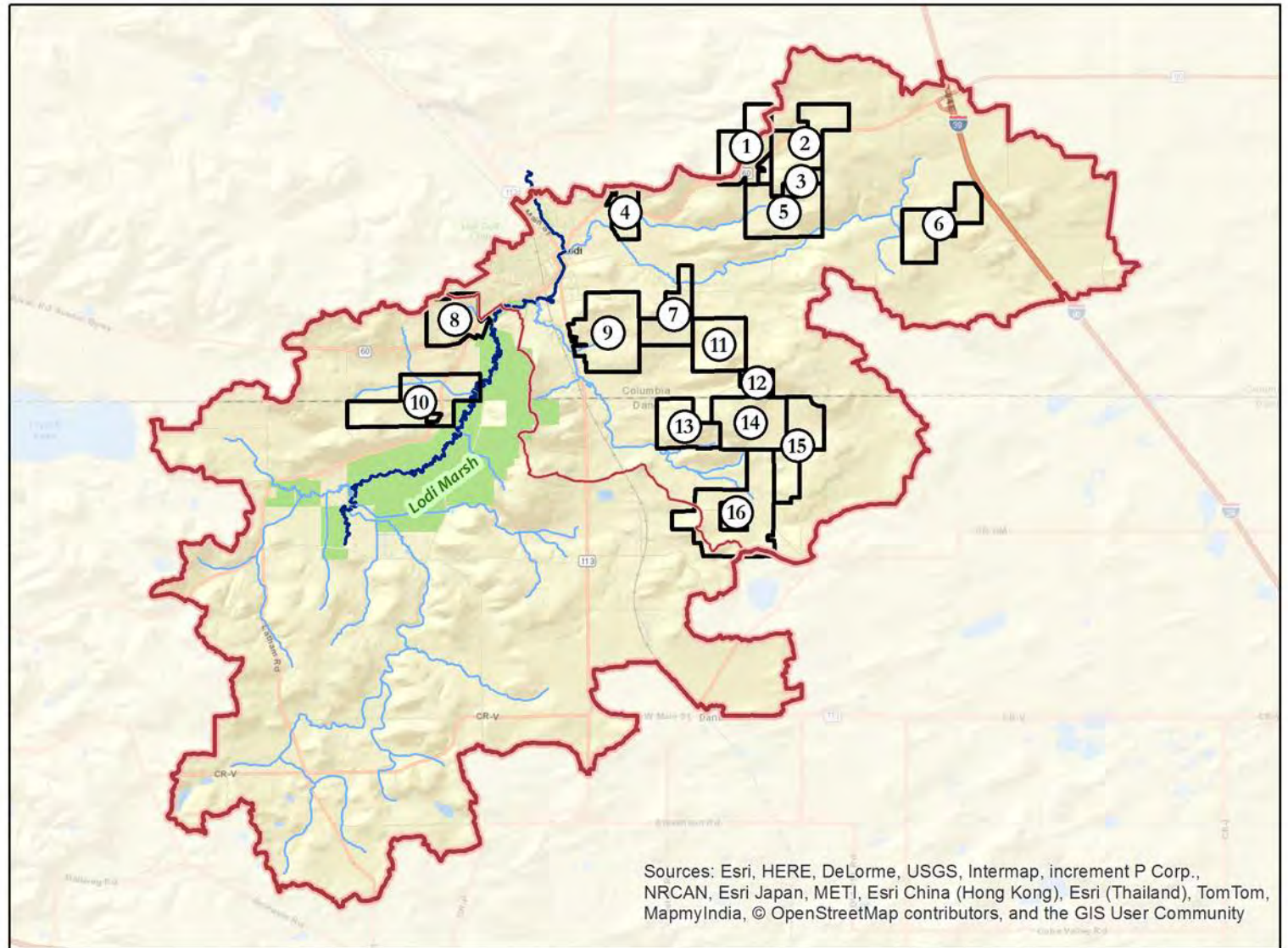
### » Agricultural, Soft Practices

- Identify fields where erosion is most likely to occur using EVAAL
- Prioritize based on relatively index



## Combined Hard & Soft Practice Priority Areas

- Landowners where both hard and soft practices may be feasible
- Reduce number of landowner agreements
- Reach P-reduction goals more efficiently



# Questions?

