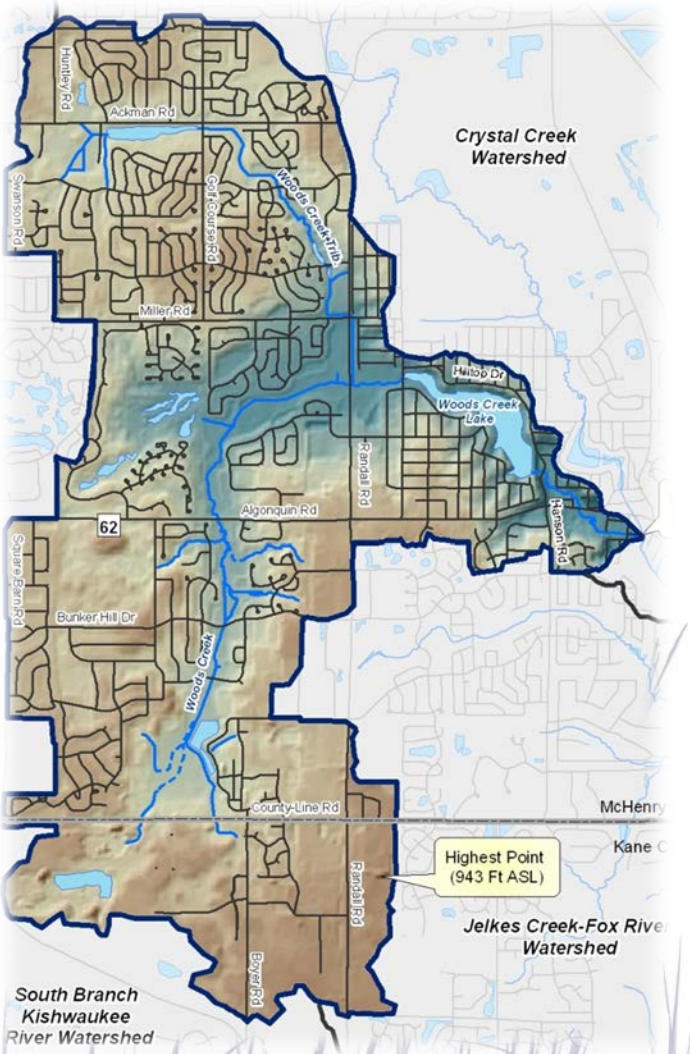


Woods Creek Watershed

Critical Areas
Pollutant Loading/Reductions
Site Specific Action Plan

Prepared for: August 22, 2012 WCWC Meeting
By: Steve Zimmerman, M.S. (AES Ecologist)

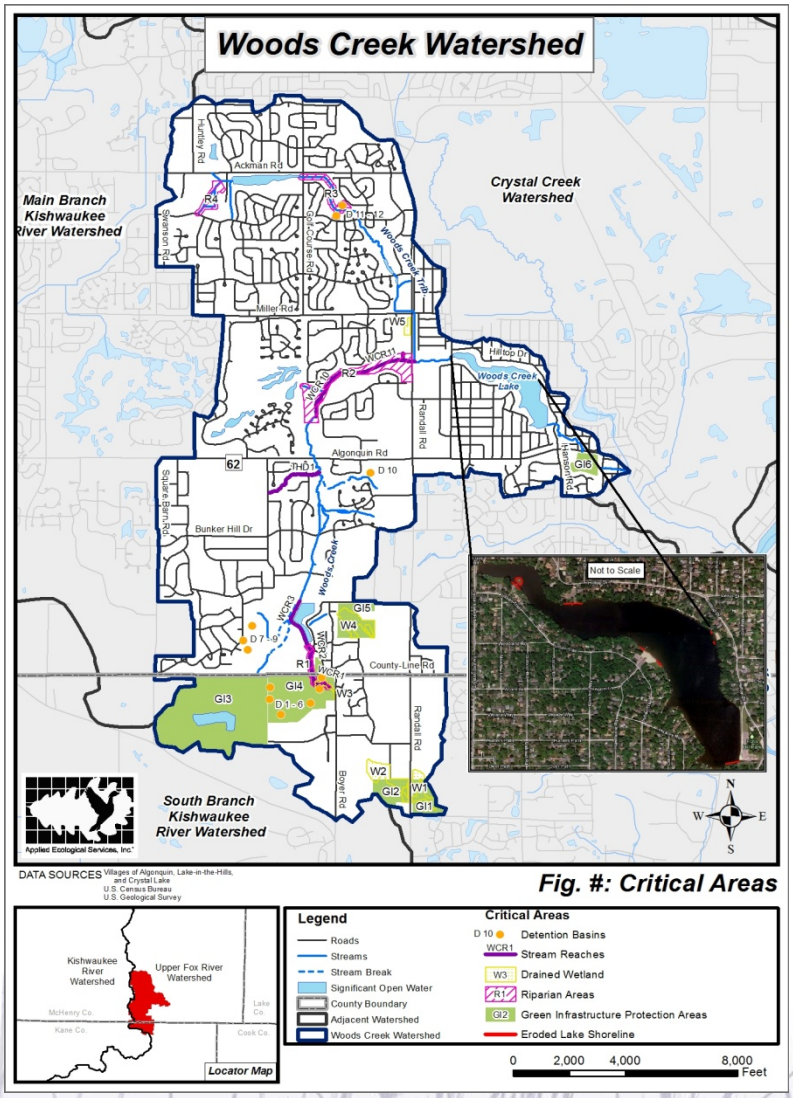
Discussion Topics

- *Critical Areas*- Where are they and what can be done?

- *Pollutant Loading Model* - Where are pollutants coming from and how can they be reduced with future projects?

- *Site Specific Action Plan* – Where and what types of projects have been identified in the watershed?

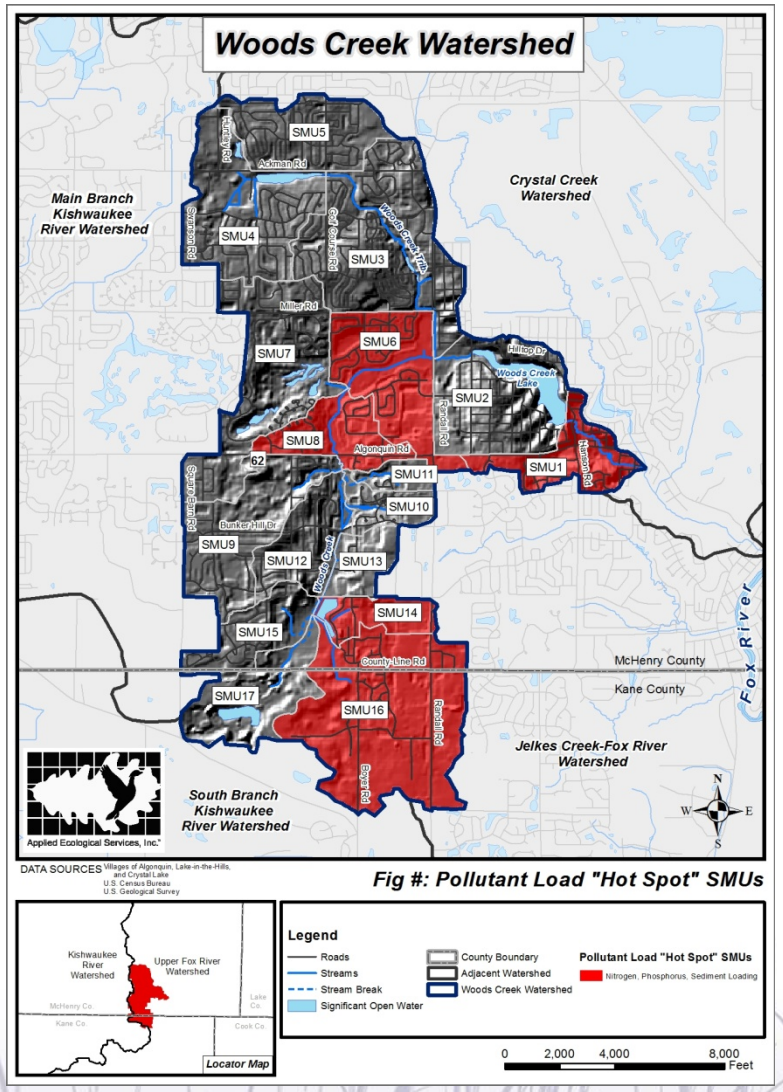
Critical Areas



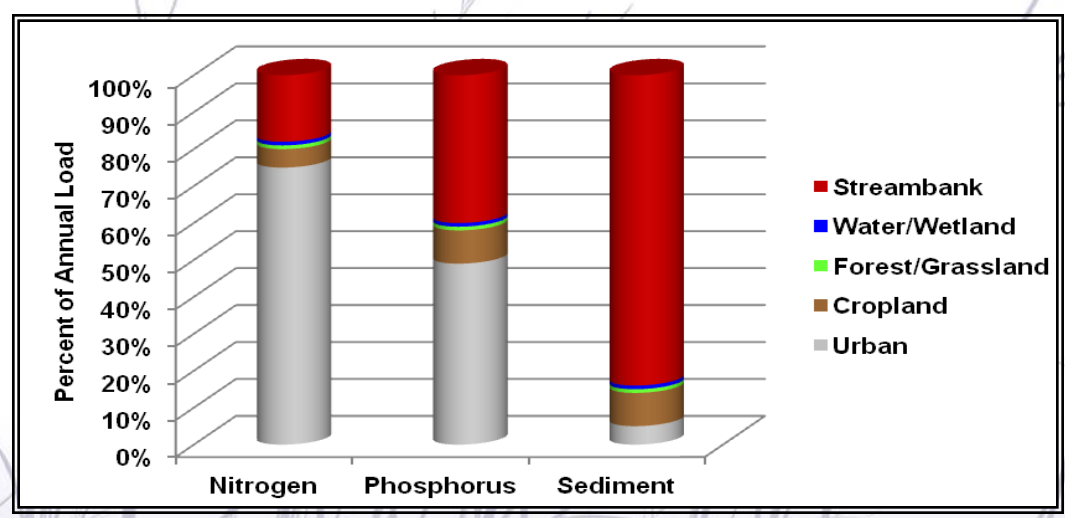
- A Critical Areas is defined by IEPA as a place or area of the watershed where causes/sources of impairment or function are relatively worse than other areas of the watershed.

Critical Area stream/channel restoration opportunity along Woods Creek (WCR10)

Pollutant Loading Model



- Streambank erosion causes high sediment and phosphorus loading downstream.
- Runoff from urban areas produces high nitrogen and phosphorus loading downstream



Pollutant Reduction from Critical Areas

Phosphorus & Sediment are documented pollutant problems in Woods Creek based on April 2012 sampling & other data.

Phosphorus: 0.10 mg/l (0.0725 is target in streams)

- 27.5% or 759 lb/yr. reduction needed to reach target.
- 51.5% or 1,422 lbs/yr. reduction in phosphorus by implementing Critical Area projects.

Sediment: > than 25 mg/l (< 19 mg/l is target)

- 17% or 430 tons/yr. reduction needed to reach target.
- 51% or 1,296 tons/yr. reduction in sediment by implementing Critical Area projects.

Site Specific Action Plan

- Detention Basin Retrofits & Maintenance
- Wetland Restoration
- Streambank & Channel Restoration
- Riparian Area Restoration & Maintenance
- Lake Shoreline Restoration
- Priority Green Infrastructure Protection Areas
- Other Management Measures

- Gully stabilization, rain gardens, bioswales, park retrofits, aquatic plant management, mercury study, trail connections, etc.

Management Measure Summary Table

Management Measure Category	Total Units (size/length)	Total Cost	Estimated Load Reduction		
			TSS (t/yr)	TN (lbs/yr)	TP (lbs/yr)
Detention Basin Retrofits & Maintenance					
Retrofits (prairie buffers, plantings, etc.)	168.25 acres	$1,014,500	119	1,424	278
Maintenance (burning, invasive control, brushing, etc.)	312.5 acres	$188,000/yr	n/a	n/a	n/a
Wetland Restoration	55.5 acres	$820,500	34	174	44
Streambank & Channel Restoration	36,558 lf	$2,507,000	1,446	2,797	1,222
Riparian Area Restoration & Maintenance	448.3 acres	$2,553,000	63.5	648	132
Lake Shoreline Restoration	1,000 lf	$150,000	32.5	65	32.5
Priority Green Infrastructure Protection Areas	412.5 acres	n/a	n/a	n/a	n/a
Other Management Measures					
Gully Stabilization	275 lf	$40,000	41	69	35
Rain Gardens	2,000 sq. ft.	$12,000	n/a	n/a	n/a
Park Retrofit	30 acres	$80,000	1.25	12	5
Bioswale/Wetland Retrofit	6 acres	$50,000	5.3	7	11.1
Upland Prairie/Buffer Restoration	140 acres	$220,000	3.7	38	29
Aquatic Plant Management-Woods Creek Lake	52 acres	$30,000	n/a	n/a	n/a
Mercury Study-Woods Creek Lake	52 acres	$6,000	n/a	n/a	n/a
Dam Inspection-Woods Creek Lake Dam/Spillway	n/a	$0	n/a	n/a	n/a
Bike Path/Trail Connection	500	$50,000	n/a	n/a	n/a
Information/Education	n/a	$31,000	n/a	n/a	n/a
TOTALS	**1,416.5 acres**	**$4,750,000**	**1,746.25 tons/yr**	**5,234 lbs/yr**	**1,789 lbs/yr**
	312.5 acres maintenance	**$188,000/yr**			
	37,833 lf	**$2,697,000**			
	Other	**$86,000**			
	Education	**$31,000**			

Detention Basin Retrofits & Maintenance

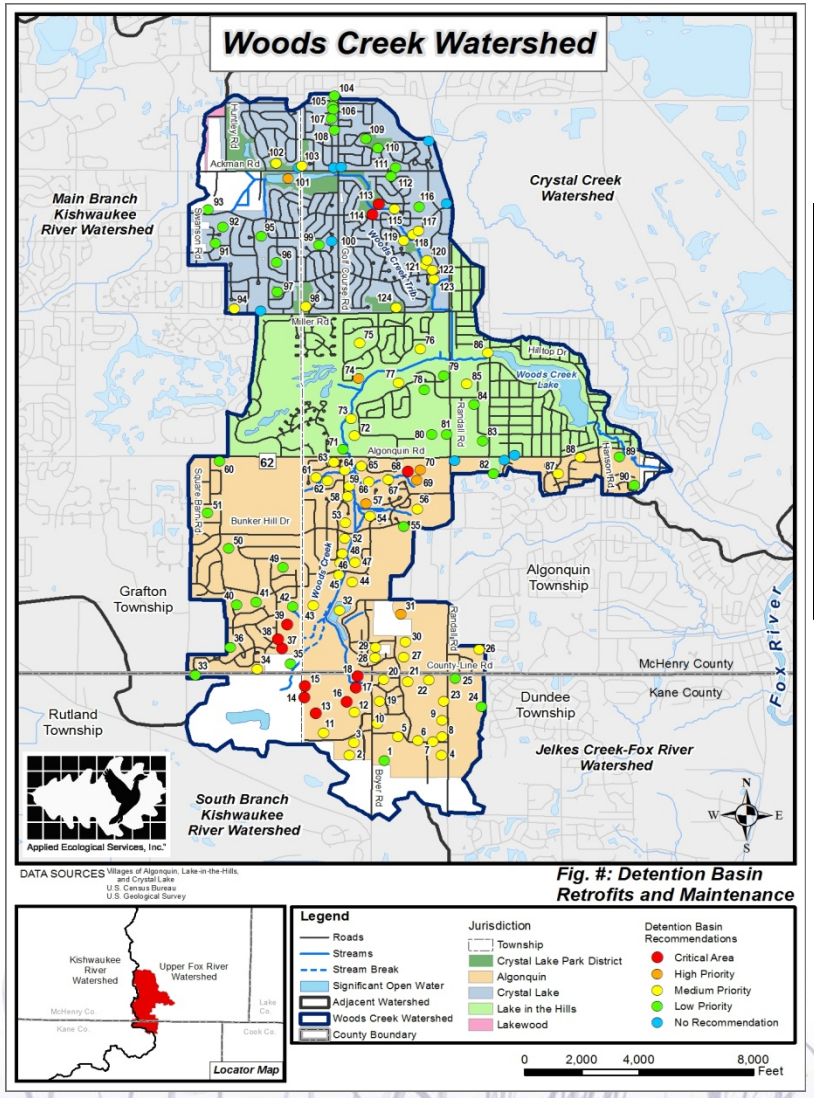


Fig. #: Detention Basin Retrofits and Maintenance

- Many basins require maintenance.
- Some basins need to be retrofitted.

Critical Area detention basin retrofit opportunity at Coves Subdivision

Properly designed wet bottom naturalized detention

Streambank and Channel Restoration

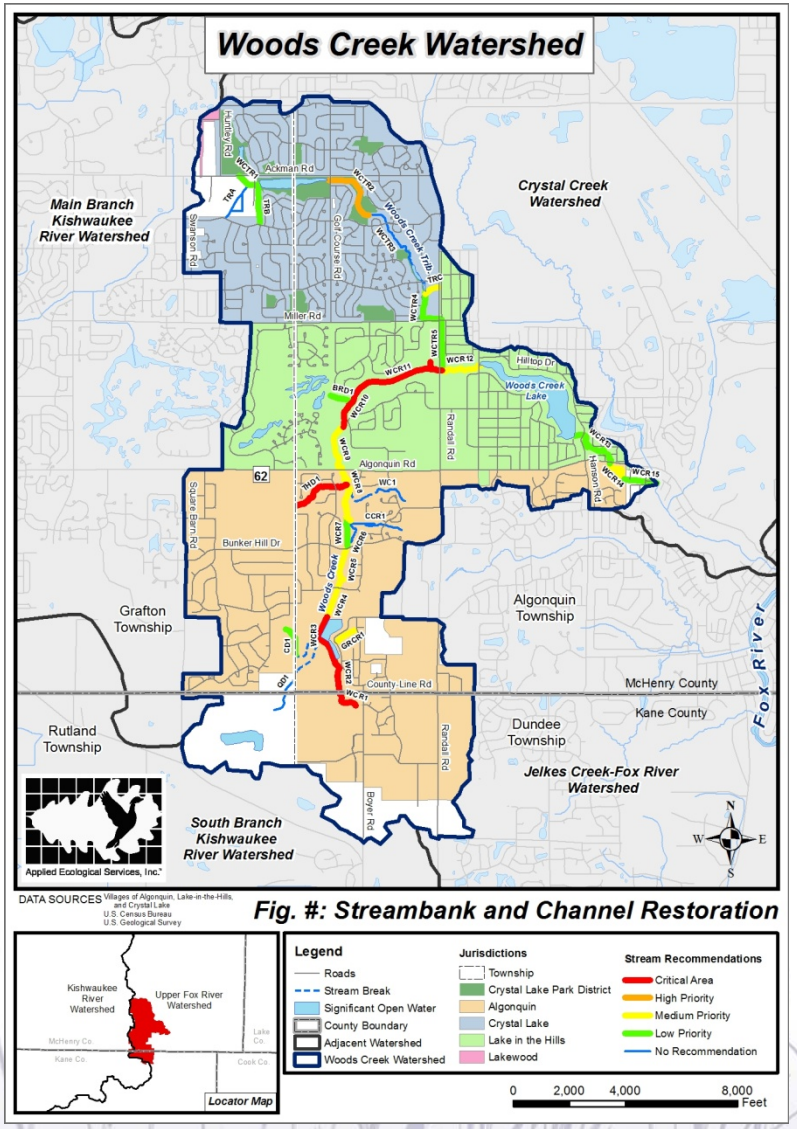
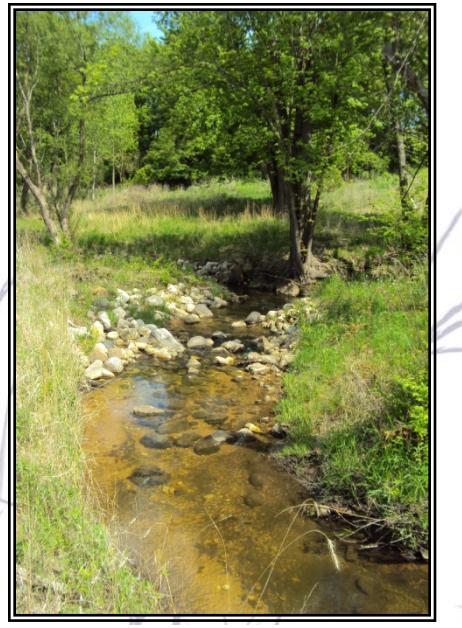


Fig. #: Streambank and Channel Restoration

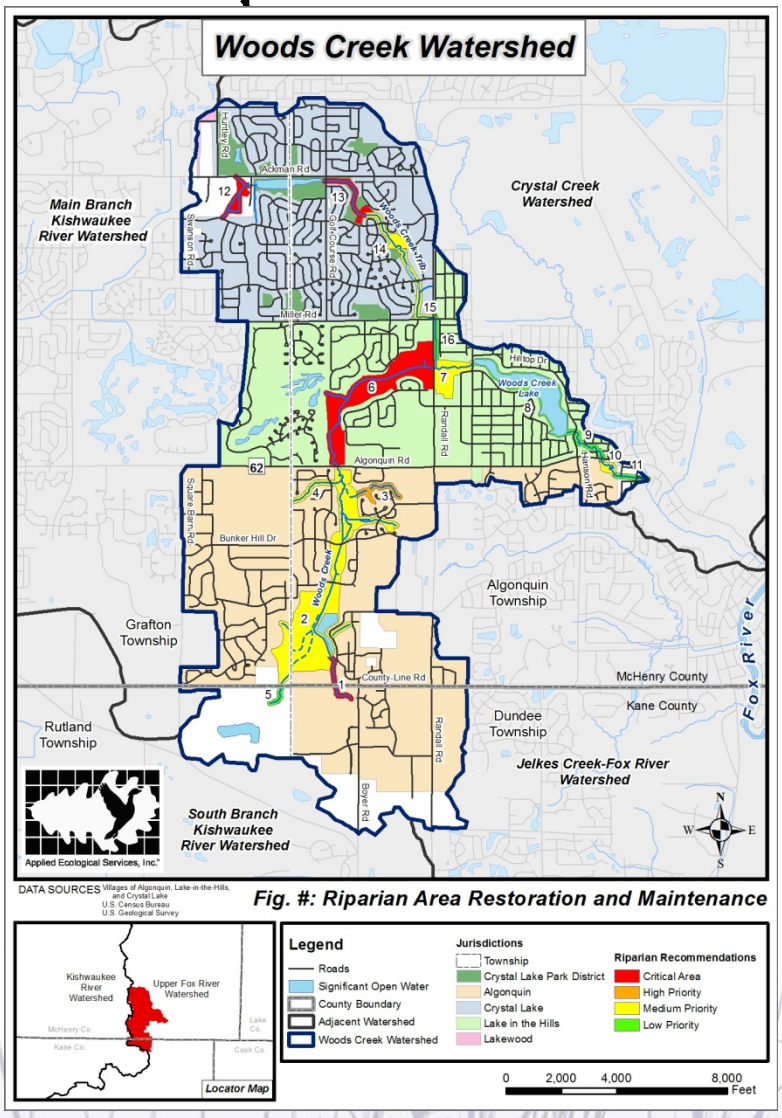
- Select stream reaches need to be completely restored.
- Other reaches would benefit from spot treatments such as riffles.

Critical Area stream/channel restoration opportunity along Woods Creek (WCR10)



Example of stream restoration project at nearby Dixie Creek

Riparian Area Restoration & Maintenance



- Many public riparian areas need management plans followed by implementation and long term maintenance.

Average quality riparian corridor along Woods Creek Tributary 3 (WCTR3) in Crystal Lake

Riparian area restoration work completed by Algonquin along Woods Creek Reach 5 (WCR5)

Other Management Measures

Potential bioswale project at Terrace Hill GC

Potential bioswale project at LITH Village Hall

- 1 gully stabilization
- 2 rain gardens
- 1 park retrofit
- 2 bioswales
- 3 upland prairie buffers
- Woods Cr. Lake: plant management & mercury study

Potential rain garden site at Algonquin Public Library

Questions?