

# *SOUTH FORK KENT CREEK WATERSHED*

## *STAKEHOLDER MEETING 3*

*Olson Ecological Solutions  
October 16, 2019*

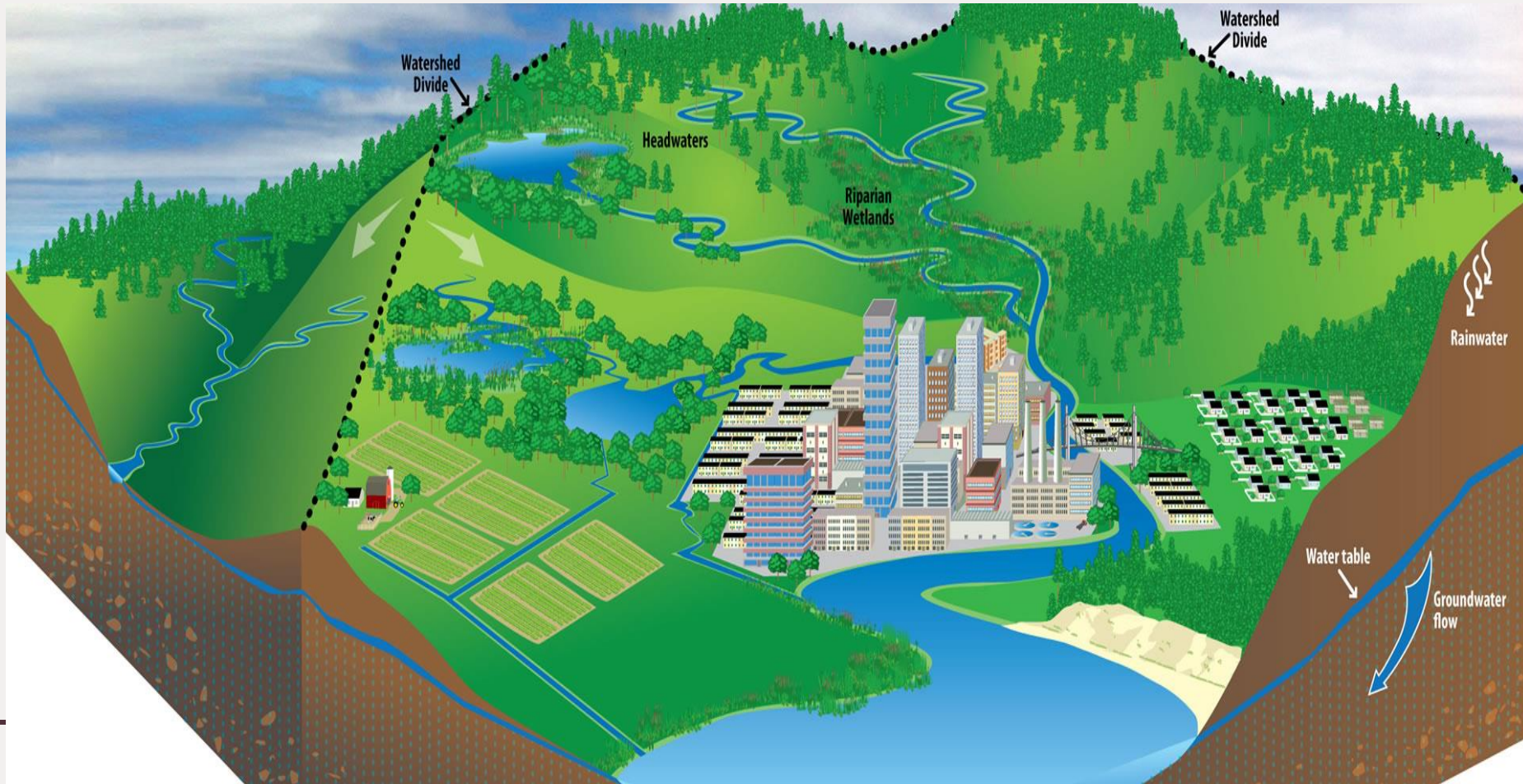


*Olson Ecological  
Solutions, LLC*




# What is a Watershed?

- A geologic area within the boundary of a drainage divide
- Watershed health=a reflection of land use and land management within the watershed

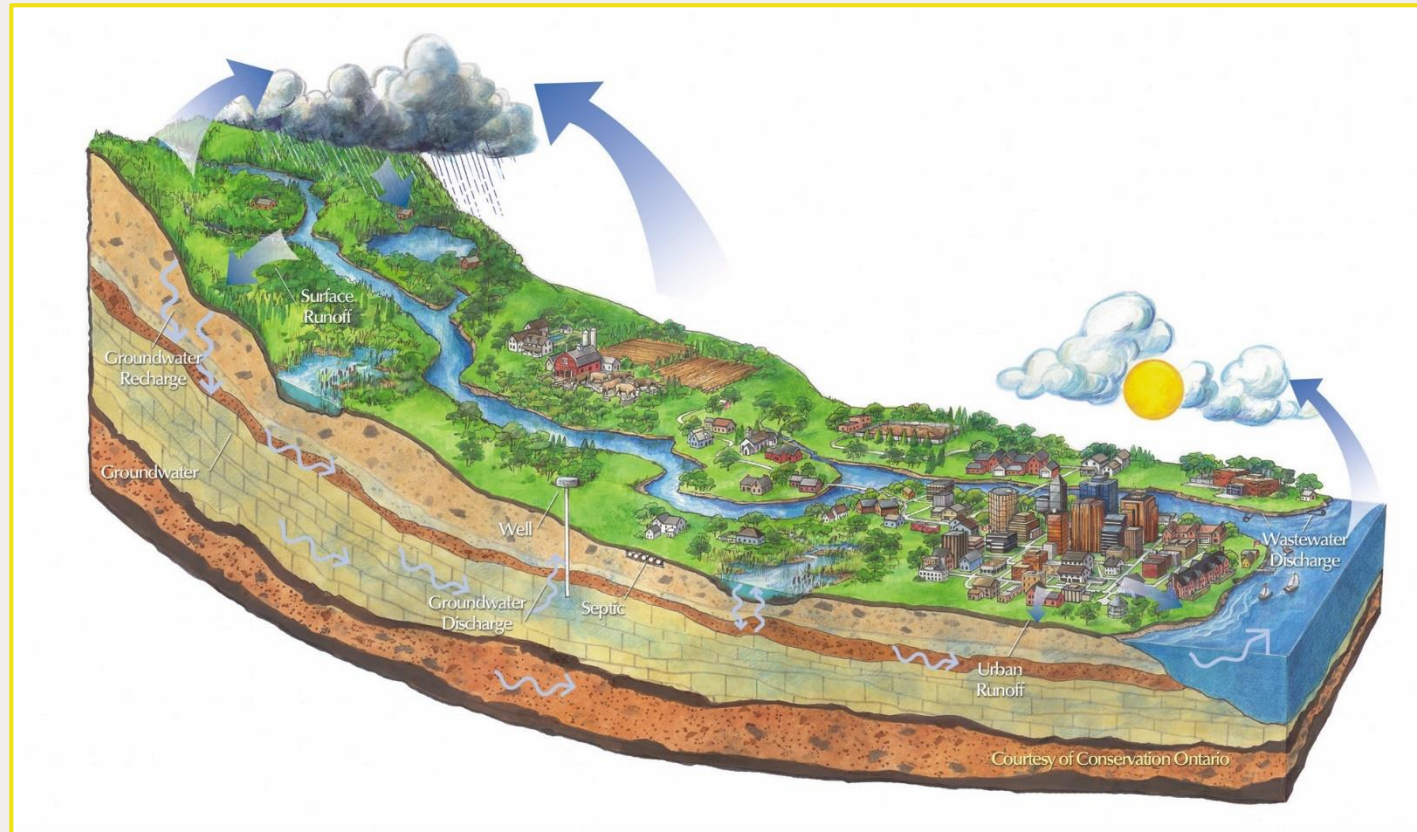


# *What is a Watershed Based Plan?*

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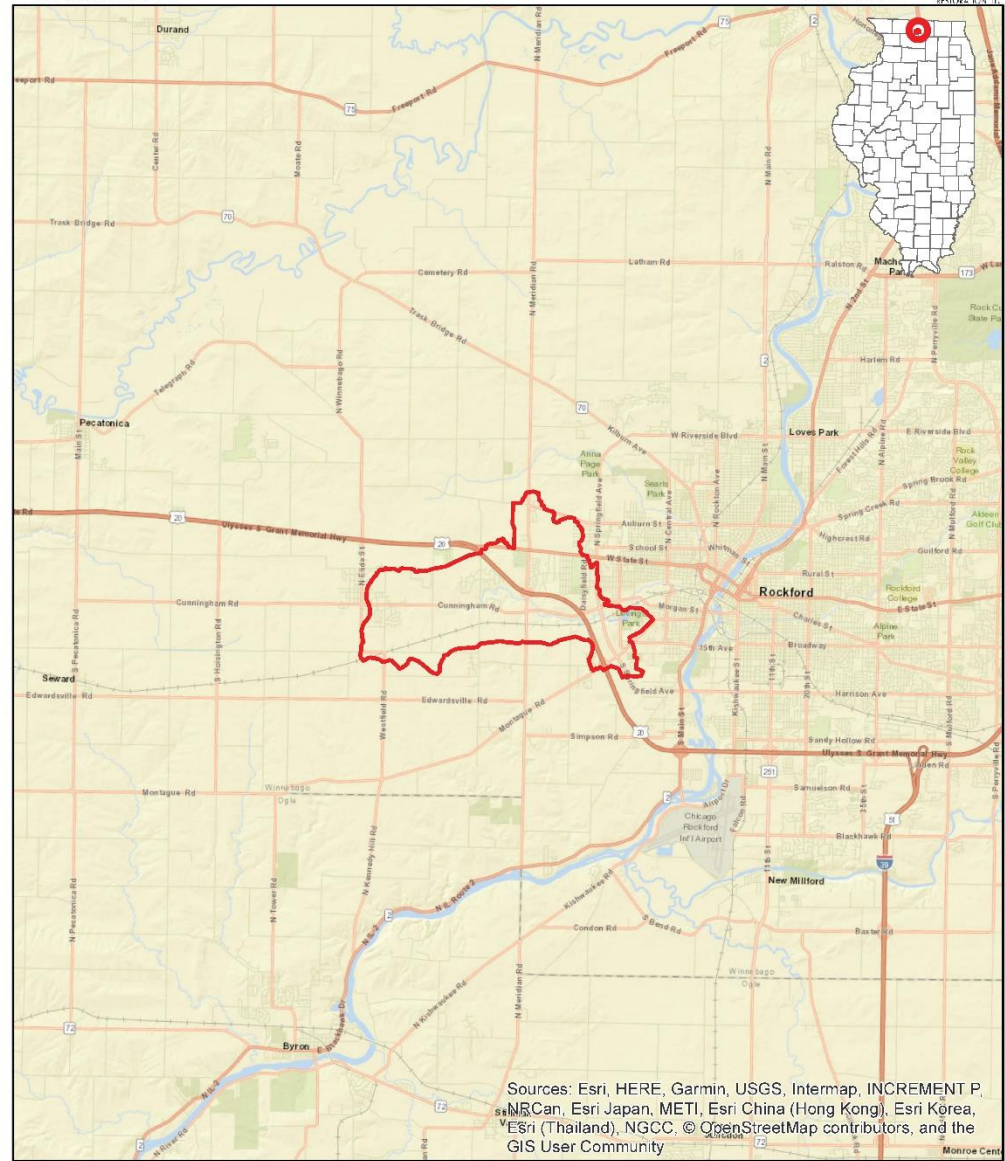
- Natural Resource Inventory
    - Assessment of historical and current conditions, features, and land uses
  - Stakeholder Involvement
  - Technical Guidance
  - Identification of Problems and Concerns
  - Recommendations
  - Implementation Schedule
  - Financial and Technical Resources
  - Monitoring Strategy
- 

# Importance of a Watershed Based Plan



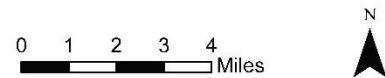
- **DISCOVER** probable causes & sources of water quality impairments
- **CREATE** course of action to address impairments
- **PROVIDE** funding and technical assistance for implementation
- **MONITOR** and **EVALUATE** progress

# South Fork Kent Creek Watershed Location



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

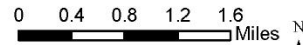
 SFKC Watershed



# South Fork Kent Creek Watershed Watershed Boundary

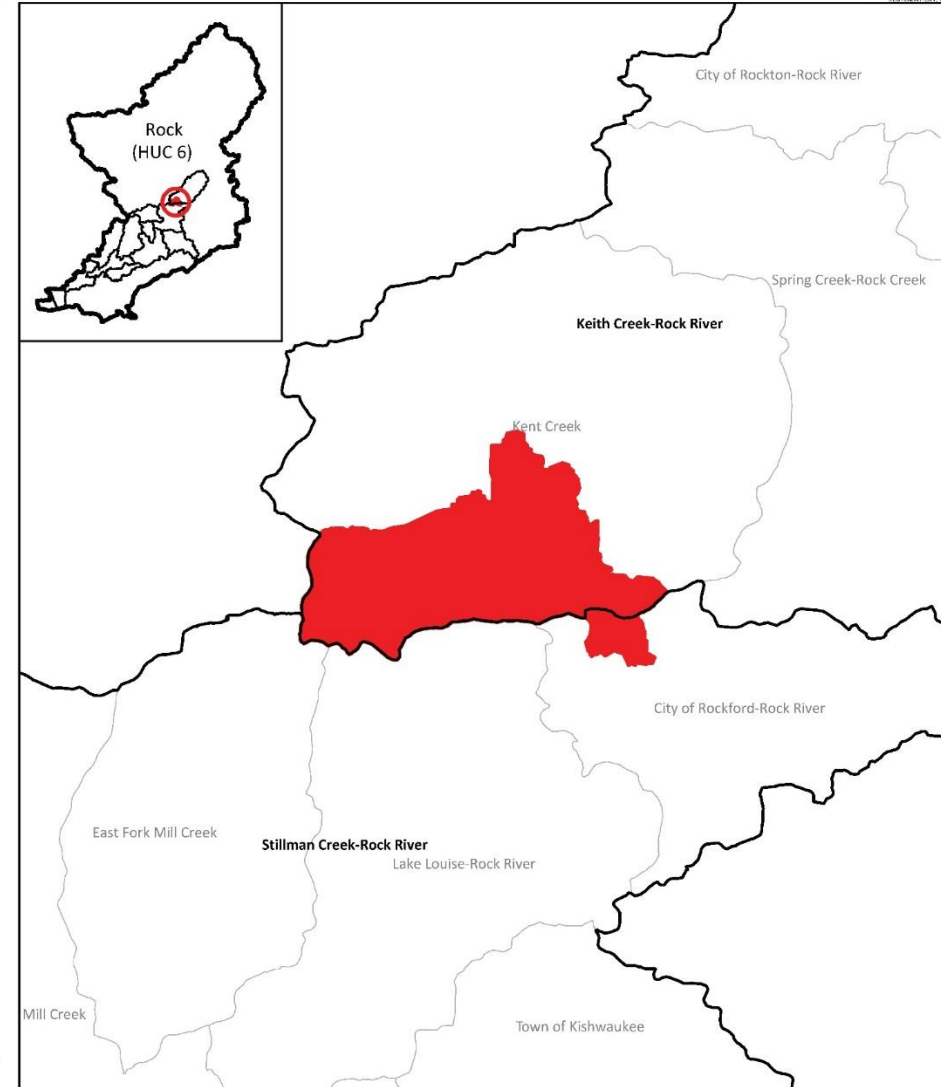


Final SFKC Watershed



Map created by Kristin Adams with Tallgrass Restoration, LLC  
Data Sources: ESRI  
Aerial Date: July 30, 2017  
Edited: 3/6/2019

# South Fork Kent Creek Watershed Watershed Locations



HUC10  
 HUC12  
 SFKC Watershed



Data Sources: USGS  
Edited: February 7, 2019  
Map created by Kristin Adams with Tallgrass Restoration, LLC

# *AGENDA*

- Review vision statement
  - Set goals & objectives
  - Review road map and future meeting dates
-

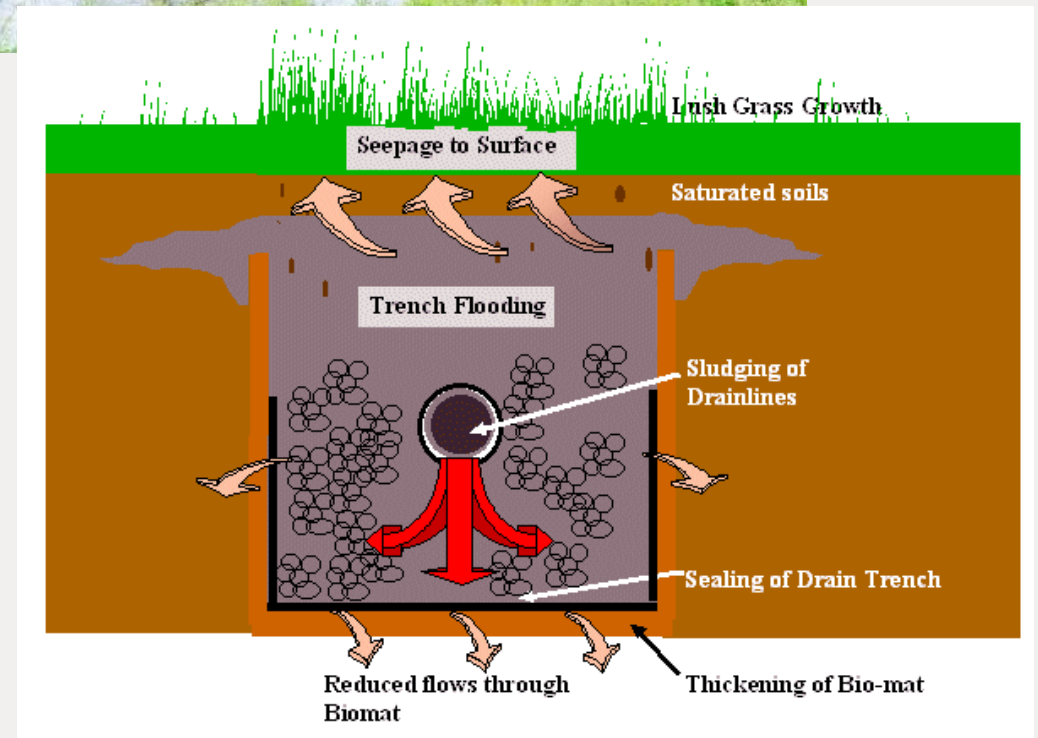
# *EPA Water Quality Assessment*

According to the Illinois Environmental Protection Agency, South Fork Kent Creek is an **impaired stream**, as it does not support primary contact due to **fecal coliform** caused by unknown sources (RMMS 2016).

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# Potential Sources of Fecal Coliform




*What do  
we want  
to protect?*

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- Clear water
  - Water quality
  - Fishing
  - Wildlife
  - Spring fed areas
  - Native wildflowers and grasses
- 

*What are  
concerns  
about the  
water  
quality?*

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- Flooding and erosion
  - Siltation
  - Effectiveness of grassed waterways
  - Elevated fecal coliform levels
    - Can pets swim in creek?
    - Where is the source?
  - Litter and illegal dumping
  - Industrial encroachment
  - Future land use changes (2030 Plan)
- 

*What is your  
vision  
for the future  
of the  
watershed?*

*Vision Statement for Levings Lake:*

We envision Levings Lake as a recreational attraction with clear water and a healthy aquatic ecosystem.

*Watershed-wide Vision Statement...*

We envision improving the water quality in South Fork Kent Creek Watershed in order to preserve and enhance the natural beauty, wildlife habitat, recreational attractions, and agricultural use of this natural resource for future generations to come.

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**We envision improving the water quality in South Fork Kent Creek Watershed in order to preserve and enhance the natural beauty, wildlife habitat, recreational attractions, and agricultural use of this natural resource for future generations to come.**

## *Drafting the Vision*

- Improve Levings Lake
- Recreational value
- Safe water for pets
- Conserve for future generations
- Preserve water quality and what we enjoy about the creek
- Decrease fecal coliform levels
- Coincide with the 2030 Land Resource Management Plan


*What could  
be  
implemented  
to improve  
the Creek  
and Lake?*

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*Programs/Behavior*

- Ensure septic systems are well maintained
- Education
- Change habits and culture

*Projects/On-the-ground*

- Filter strips and buffer strips
  - Fence livestock out of stream
  - Filter water downstream of wildlife congregation areas
  - Slow the water down and give it a place to settle out
  - Reduce flooding
- 

# Example Goals Clear Cr. Watershed, Ogle Co.

Goals	Objectives
1. Minimize erosion and sedimentation.	a. Decrease streambank and shoreline erosion.
	b. Deter flashy hydrology and minimize stormwater runoff.
	c. Reduce soil loss from crop fields.
	d. Implement best management practices as pilot projects to use as examples and to test procedures.
	e. Trap sediment before it enters the stream or lake.
2. Minimize nutrient loading into surface waters and groundwater.	a. Reduce nutrient leaching into the groundwater.
	b. Reduce nutrient loading into the stream and lake from subsurface sources.
	c. Reduce nutrient loading into the stream and lake from surface runoff.
3. Protect "Class A" and other productive soils.	a. Prevent conversion of land use.
4. Protect, enhance, and manage wildlife and their habitats.	a. Protect existing wildlife habitat and high quality natural areas.
	b. Manage wildlife habitat and natural areas.
	c. Reduce fragmentation of wildlife habitat and natural areas.
	d. Manage overpopulated wildlife.
	e. Create new wildlife habitat.
5. Protect the rural lifestyle.	a. Maintain relative percentages of current land uses.
	b. Support opportunities for recreation, hunting, and fishing.
	c. Consider the economics involved for the individual producer in each conservation action.

# *Example Goals Candlewick L. Watershed, Boone Co.*

## **Goals for Streams and Lakes Conservation in the Candlewick Lake Area**

1. Reduce the amount of soil washing into our streams and lakes.
2. Reduce the amount of nutrients entering our streams, lakes, and groundwater.
3. Maintain a healthy volume of water feeding Candlewick Lake with a consistent flow.
4. Treat pollution from future development before it enters our streams and lakes.
5. Coordinate with local municipalities to create policies that improve water quality.
6. Educate the community about land and water conservation and this plan.



# *Example Goals Spring Br. Watershed, Stephenson Co.*

## *Goals for Spring Branch of Yellow Creek*

- 1. Reduce the sediment and nutrient loading from creek banks.*
  - 2. Reduce sediment and nutrient loading from livestock and row crop operations.*
  - 3. Address volume and velocity of water runoff to enhance water quality.*
  - 4. Utilize practices that protect and/or enhance wildlife habitat.*
  - 5. Consider landowner needs with each project and practice.*
  - 6. Maintain and support a sustainable farming community.*
-



*“A CLEANER  
LEVINGS LAKE”*

*GOALS*

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## *Goal #1*

Free Levings Lake from unnatural algae blooms.

## *Goal #2*

Restore the natural lake bottom of Levings Lake.

## *Goal #3*

Improve the water clarity throughout the lake.

## *Goal #4*

Improve wake park operations by dissipating wave action and preventing algae blooms within the wake park expansion area.

## *Goal #5*

Improve fish quantity and quality within designated fishing areas.

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*SOUTH FORK  
KENT CREEK*

*GOALS*

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# Example Objectives/Action Items

## Clear Cr. Watershed, Ogle Co.

Figure 3-2: Action items that address the goals and objectives.

Priority	#	Action Item	Category
*	1	Stabilize streambank along permanent and intermittent streams, including the creation of check dams to slow water velocity.	Stream
*	2	Stabilize shoreline at Lost Lake.	Stream
*	3	Increase acreage of conservation farming and creation of grassed waterways on all farmland including highly erodible lands (HEL), using techniques such as no-till and strip till.	Rural
*	4	Create wetlands.	Rural
*	5	Construct rain gardens near homes.	Urban
*	6	Create filter strips.	Rural
*	7	Construct buffer strips with paths mowed at a diagonal along Lost Lake shoreline.	Urban
	8	Create stormwater holding ponds with dikes and berms to slow water velocity.	Stream
*	9	Construct a sediment control basin at the confluence of Babbling Brook and Lost Lake.	Stream
*	10	Expand the sediment control basin at the confluence of Clear Creek and Lost Lake.	Stream
	11	Limit the access of cattle to the stream.	Rural
	12	Provide shady areas and alternative water sources for cattle to decrease their time spent in the stream.	Rural
*	13	Manage fertilizer, herbicide, nutrient, and insecticide loss.	Rural
	14	Preserve prime farmland and farmland of statewide importance by activating agricultural easements.	Rural
*	15	Require homeowners to conduct inspections on their septic systems every 3 years.	Urban
*	16	Continue the campaign to use zero phosphorous fertilizers in residential areas.	Urban
*	17	Preserve priority natural areas, wildlife habitat, and open space with conservation easements and land acquisition.	Rural
	18	Create wildlife corridors between existing wildlife habitat and natural areas.	Rural
	19	Convert land around important, existing natural areas to wildlife habitat and natural area buffer.	Rural
	20	Manage important natural areas and wildlife habitat.	Rural
	21	Create recreation trails.	Urban
	22	Manage overpopulated wildlife by hunting deer with nuisance permits, adding eggs for goose control, and trapping beaver.	Rural/ Urban
	23	Continue to participate in long range planning efforts with the community.	Urban/ Rural
	24	Give presentations to landowners and farmers about runoff.	Rural
	25	Provide educational guidelines to landowners and farmers for management of runoff.	Rural
	26	Educate producers to make sure that they are aware of techniques and financial support to manage soils, residue, and contours.	Rural
	27	Use the Babbling Brook and Lost Lake Streambank Stabilization Project as a pilot project.	Stream
	28	Use projects as demonstrations, such as with The Nature Conservancy.	All
	29	Educate homeowners about best practices for home and yard.	Urban
	30	Partner with organizations that share similar missions.	All

# *Example Objectives*

## *Candlewick Lake, Boone Co.*

Goal 1: Reduce the amount of soil entering our streams and lakes.

### **Objectives for Goal 1**

1. Reduce the amount of sediment entering streams and lakes by 417 tons/yr (36%).

# *Example Objectives*

## *Candlewick Lake, Boone Co.*

Goal 2: Reduce the amount of nutrients entering our streams, lakes, and groundwater.

### **Objectives for Goal 2**

1. Reduce the amount of phosphorous entering streams and lakes by 620 lbs/yr (23%).
2. Reduce the amount of nitrogen entering streams and lakes by 2,600 lbs/yr (22%).

# *Example Objectives*

## *Candlewick Lake, Boone Co.*

Goal 3: Maintain a healthy volume of water feeding Candlewick Lake with a consistent flow.

### **Objectives for Goal 3**

1. Determine the water budget baseline for Candlewick Lake.
2. Determine the water volume requirements of Candlewick Lake.
3. Reduce flashy hydrology during storms for each stream reach feeding Candlewick Lake, Boone Lake, and Beaver Creek.
4. When designing recommended projects, determine how the project will affect the water budget and design projects to ensure a sufficient water supply to Candlewick Lake with a steady, gradual flow.



# *Example Objectives*

## *Candlewick Lake, Boone Co.*

Goal 4: Treat pollution from future development before it enters our streams and lakes.

### **Objectives for Goal 4**

1. Review plans for development and recognize the opportunities to improve water quality coming from the development.
2. Determine the pollution projected to come from the development before and after opportunities to improve water quality are implemented to estimate the pollution reduction possible.
3. Implement water quality projects to lessen the amount of pollution entering our streams and lakes from each planned development.

# *Example Objectives Candlewick Lake, Boone Co.*

Goal 5: Coordinate with local municipalities to create policies that adhere to these goals.

## **Objectives for Goal 5**

1. Adopt a common, updated ordinance or intergovernmental agreement for Timberlane, Poplar Grove, Caledonia, and Boone County to protect water quality under the guidance of the most current Boone County Regional Stormwater Management Plan.
2. Provide recommendations to protect water quality from this plan to all municipalities to be included in the ordinances or intergovernmental agreement.
3. Create a relationship with all local municipalities to promote cooperation in land and water conservation efforts.

# *Example Objectives Spring Br., Stephenson Co.*

Goal 6: Educate the community about land and water conservation and this plan.

## **Objectives for Goal 6**

1. Increase awareness of nutrient runoff from lawns, driveways, rooftops, and farm fields and encourage behaviors that will reduce nutrient pollution in local streams and lakes.
2. Increase awareness of the connection between protecting our streams and lakes and improving people's quality of life, recreational opportunities, scenic amenities, community value, property value, and public health.
3. Promote partnerships with community groups that can assist in creating public awareness.
4. Enroll homeowners and landowners in a recognition program for implementing conservation projects and participating in land and water protection programs.
5. Deliver Urban Campaign education materials and invitations to events to all households within urban areas of the watershed.
6. Deliver Rural Campaign education materials and invitations to events to all households within the rural areas of the watershed.
7. Provide all municipalities and developers within the watershed with Future Development Campaign education materials and invitations to events and meetings.

\*Objectives 1-4 are adopted from the EPA's "Developing an Outreach Strategy" website.

# *Example Objectives Spring Br. Watershed, Stephenson Co.*

Objectives for Goal 1: Reduce sediment and nutrient loading from creek banks.

- A. Stabilize 2210 feet of bank along the most severely eroded sections of creek along Loran Road.
  - B. Stabilize 5814 feet of the most severely eroded creek banks throughout the watershed.
  - C. Execute the maintenance plan for long-term creek bank stabilization.
-

# *Example Objectives*

## *Spring Br. Watershed,*

### *Stephenson Co.*

Objectives for Goal 2: Reduce sediment and nutrient loading from livestock and row crop operations.

Apply appropriate Best Management Practices (BMPs) to accomplish the following.

- A. Address end-row erosion on 3.4 acres (20% of the total 17 acres of end rows).
- B. Buffer 7,140 feet of stream from sediment and nutrient loading (20% of 35,700 feet without existing buffer).
- C. Target erosion in crop fields on 590 acres (20% of the 2,944 acres of tilled crop land).
- D. Address nutrients and pathogens originating from 1 of 6 existing livestock operations.
- E. Improve vegetative cover in 16 acres of existing, forested riparian areas (20% of the total 79 acres).

# *Example Objectives Spring Br. Watershed, Stephenson Co.*

Objectives for Goal 3: Address volume and velocity of water runoff to enhance water quality.

- A. Design whole-farm management systems for 10-year and/or 25-year storm events to be proactive in reducing flooding utilizing BMPs.
  - B. Incorporate a good water management system that will measurably improve downstream impacts.
  - C. Slow/manage water flow using BMPs, especially through channelized section along Loran Road.
-

# *Example Objectives Spring Br. Watershed, Stephenson Co.*

**Objectives for Goal 4: Utilize practices that protect and/or enhance wildlife habitat.**

**For each BMP focused on water quality, protect and/or enhance habitat for:**

- A. Pollinators (e.g. monarch butterflies and honeybees),**
- B. Fish,**
- C. Macroinvertebrates,**
- D. Waterfowl,**
- E. Turtles,**
- F. Amphibians,**
- G. Species in Greatest Need of Conservation, and**
- H. Threatened and Endangered Species.**

# *Example Objectives Spring Br. Watershed, Stephenson Co.*

**Objectives for Goal 5: Consider landowner needs with each project and practice.**

- A. Utilize cost share opportunities when available for each BMP.**
  - B. Provide technical assistance to landowners to plan and implement BMPs.**
  - C. Utilize market-value crops in conservation buffer practices when practicable.**
-



# *Example Objectives Spring Br. Watershed, Stephenson Co.*

## **Objectives for Goal 6: Maintain and support a sustainable farming community.**

- A. Review and propose revisions to state and federal regulations related to farming practices that affect water quality, runoff volume, and economic viability.
  - B. Put ordinances into place to protect the rural farming community from the negative effects of urbanization in relation to water quality, runoff volume, and ability to continue farming.
  - C. Review and propose revisions to local stormwater ordinances if farmland conversion occurs.
  - D. Utilize water quality BMPs that keep properties within the County tax base.
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*SOUTH FORK  
KENT CREEK*

*OBJECTIVES*

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*THANK YOU FOR YOUR  
TIME!  
QUESTIONS?*

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# South Fork Kent Creek Watershed FEMA Flood Hazard



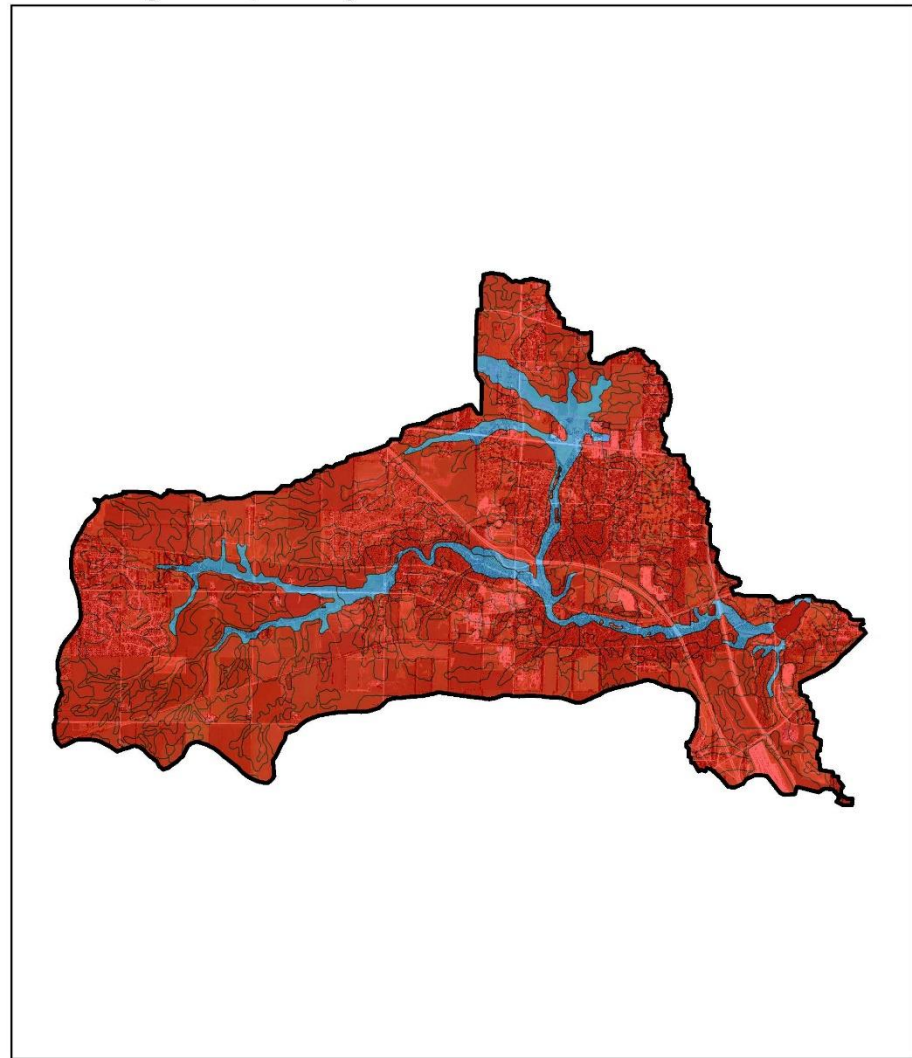
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Floodway
- SFKC Watershed



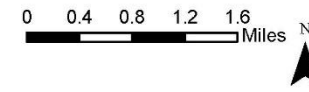
Data Sources: FEMA, USGS  
Aerial Date: July 30, 2017  
Edited: July 9, 2019

Map created by Kristin Adams with Tallgrass Restoration, LLC

# South Fork Kent Creek Watershed Flooding Frequency



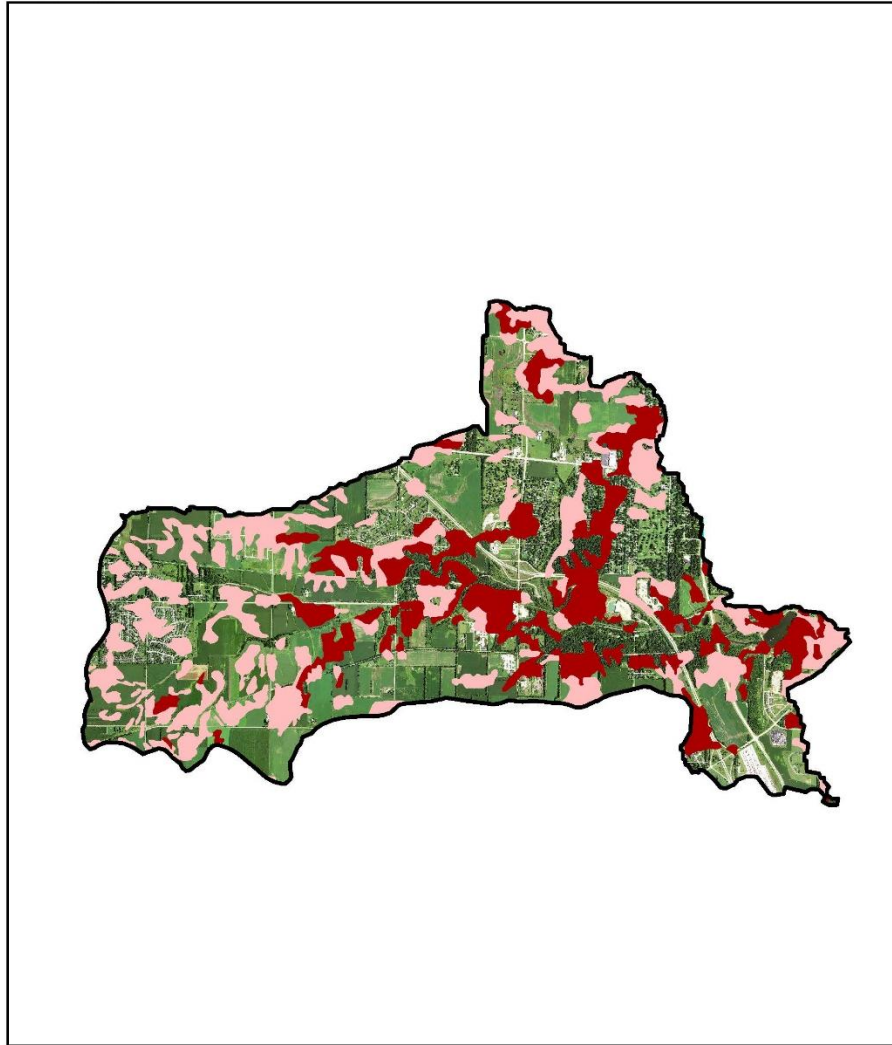
- SFKC Watershed
- None
- Very Rare
- Rare
- Occasional
- Frequent
- Very Frequent



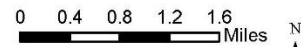
Data Sources: USGS, USDA NRCS  
Aerial Date: July 30, 2017  
Edited: July 18, 2019

Map created by Kristin Adams with Tallgrass Restoration, LLC

# South Fork Kent Creek Watershed Highly Erodible Land

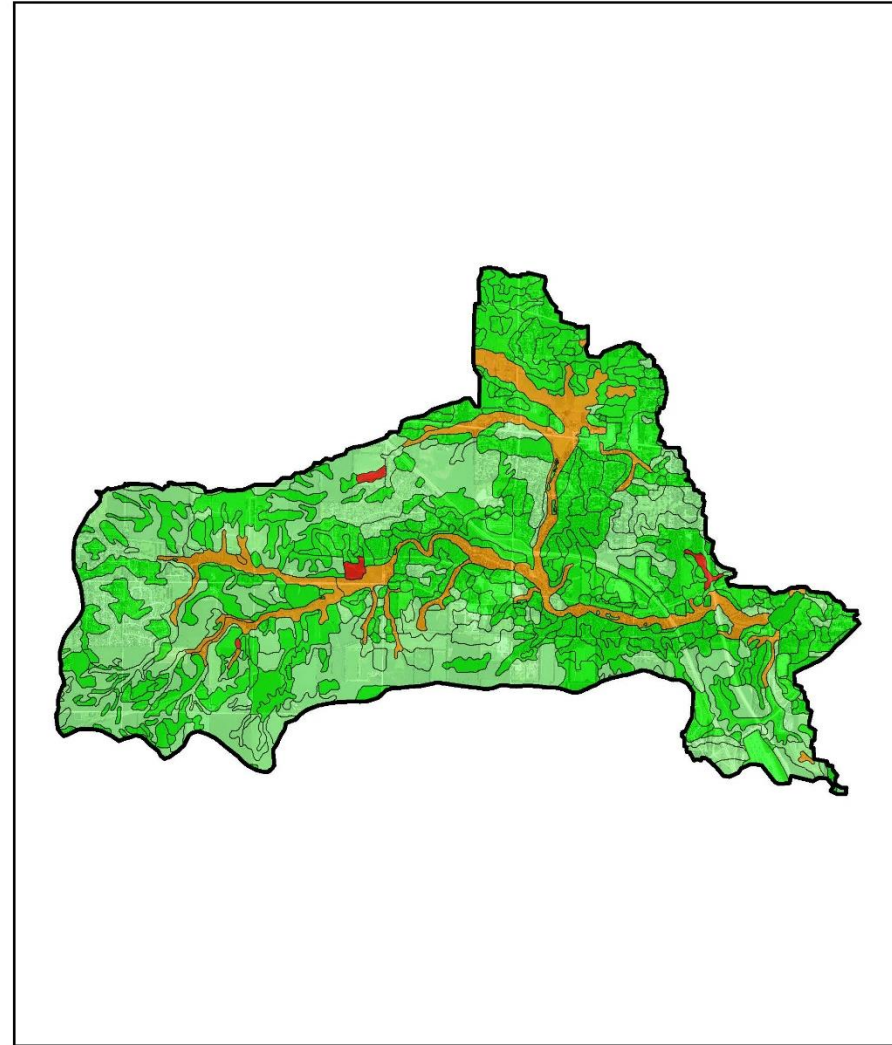


- SFKC Watershed
- Highly Erodible Land
- Potentially Highly Erodible Land

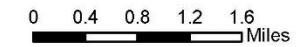


Data Sources: USGS, USDA NRCS  
 Aerial Date: July 30, 2017  
 Edited: July 18, 2019  
 Map created by Kristin Adams with Tallgrass Restoration, LLC

# South Fork Kent Creek Watershed Hydric Soils

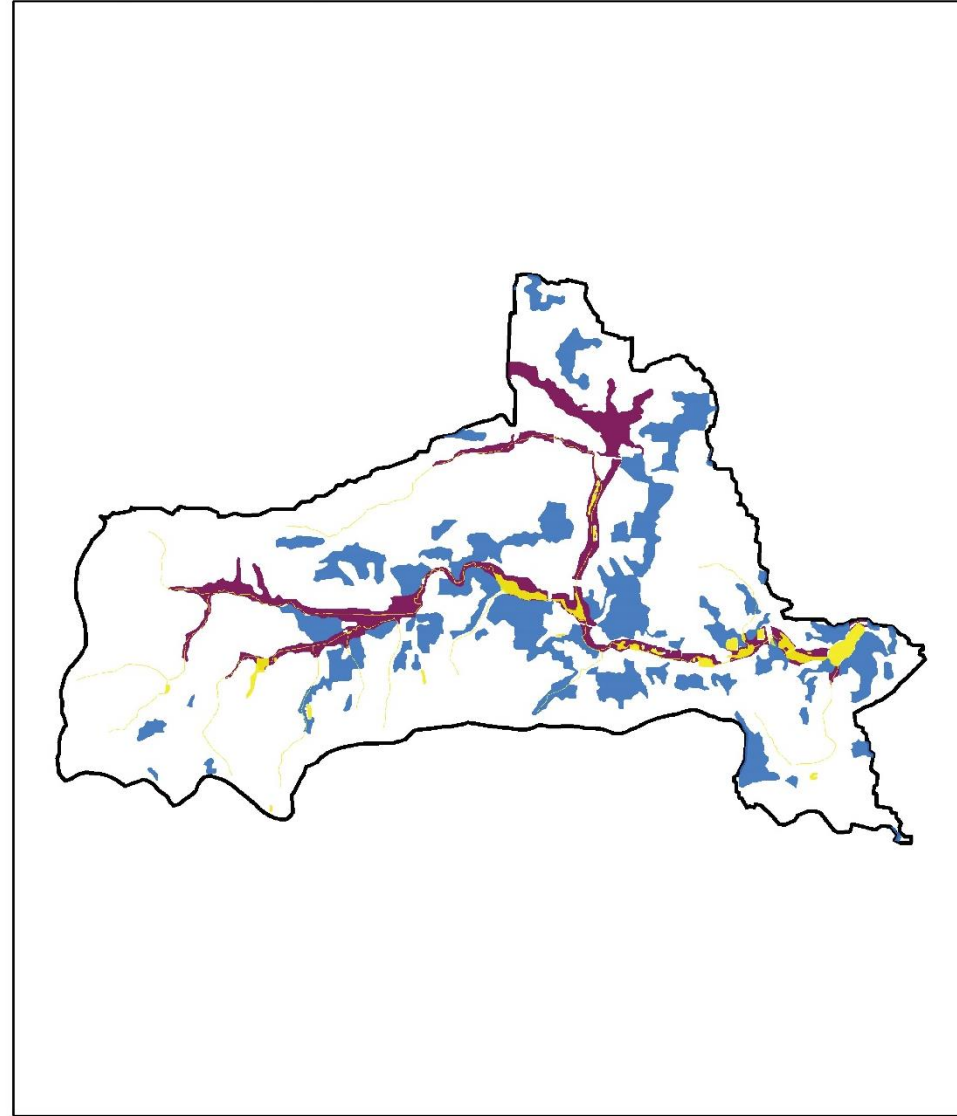


- SFKC Watershed
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

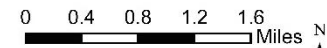


Data Sources: USGS, USDA NRCS  
 Aerial Date: July 30, 2017  
 Edited: July 18, 2019  
 Map created by Kristin Adams with Tallgrass Restoration, LLC

# South Fork Kent Creek Watershed Priority Area Map



- NWI
- HEL
- Overlap of Hydro Group, Flood Freq, Hydric, FEMA
- SFKC Watershed



Data Sources: USGS, USDA  
Aerial Date: July 30, 2017  
Edited: August 21, 2019

Map created by Kristin Adams with Tallgrass Restoration, LLC