Aux Sable Creek Watershed

TECHNICAL DOCUMENT

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Technical Document

Aux Sable Creek Watershed Planning Committee
and
Aux Sable Creek Watershed Technical Advisory Committee

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Component #1 Mission Statement

The Mission of the Aux Sable Creek Watershed Planning Committee is to promote awareness of the exceptional natural resources in the Aux Sable Creek watershed and to encourage activities that will protect and improve the watershed.

The Planning Committee is working to:

- Identify challenges to the quality of the Aux Sable Creek watershed;
- Develop alternative strategies to address these challenges;
- Promote conservation education that will enhance the Aux Sable Creek watershed.

Component #2 Watershed Description

The Aux Sable Creek watershed is a sub-watershed of the Upper Illinois River watershed. The Aux Sable Creek watershed drains areas in Kendall, Grundy, and Will Counties. The watershed area totals 118,758 acres (185.6 square miles) of which 92,181 acres are in Kendall County, 25,980 acres in Grundy County, and 597 acres in Will County.

The watershed hydrologic unit number is 07120005 101. The water body identification numbers include both ILDW01 and ILDWD01. Nine stream segments are within the watershed. They are DW 01, TD 64, DWB, DWBA, DWBB, DWC, DWEA, DWF 01, and DWD 01.

The land adjacent to the creek is primarily in private ownership causing access to be restricted. The amount of public land allowing access consists of Baker's Forest Preserve managed by the Kendall County Forest Preserve District and the Illinois and Michigan National Heritage Corridor.

Component #3 Watershed Activities

In the winter of 1997, the Aux Sable Creek Watershed Planning Committee formed. It is comprised of local citizens and community leaders. The Planning Committee identified the resource concerns and objectives for what can be accomplished in the watershed. The grass root planning process provides a holistic approach to address the concerns. A Technical Advisory Committee conducted inventories, analyzed the data, and provided recommendations for each of the resource concerns. (Appendix A)

Resource Concerns

- Flooding of bridges, roads, farmland, and residential homes
- Soil erosion from cropland and sedimentation in the creek
- Man-made and natural obstructions of natural creek flow
- Poorly planned development
- Future construction in the floodplain
- Potential pollution and contamination caused by sewage
- Inadequate stormwater management
- Farmland protection
- Disappearance of wetlands
- Streambank erosion
- Minimal recreation opportunities
- Lack of wildlife and wildlife habitat with effective management
- Future degradation of surface and groundwater quality
- Lack of government support and interest

The Kendall County Soil and Water Conservation District (SWCD) has hosted educational tours that looked at conservation practices such as terraces, grass waterways, grade stabilization structures, and conservation tillage. The tours targeted both agricultural and non-agricultural individuals. It resulted in farmer acceptance of high residue farming practices and the application of terraces and grass waterways. These have significantly reduced sheet, rill, and gully erosion. The tours allowed for farmers to view the practices and see the direct results and benefits they have on the land and for their farming operation. The non-agricultural audience gained an understanding of what efforts are being made to conserve natural resources.

The 'T by 2000' survey indicates that farmers are implementing higher residue management practices resulting in less erosion and 'T' values being achieved. 'T' represents the tolerable soil loss for any specific soil. The surveys have shown that each year less tillage is used on the fields resulting in more residue from the previous crop. This change allows for more water to infiltrate into the soil and reduces soil erosion. All activities and programs that support the acceptance of these practices contribute to the utilization of these conservation practices. In 1999, 96% of the agricultural acres in Kendall County and 96% of the acres in Grundy County met 'T'.

During the academic year, the Kendall County SWCD's Education Coordinator provides curricular offerings dealing with water quality, water pollution, conservation, best management practices in the agricultural community, and natural resource awareness. The presentations are offered to Kendall County students from kindergarten through 12th grade. In addition to the supplementary curricular offerings, resource materials are made available to teaching staff and non-traditional educators. During the 1998-1999 school year, almost 3,000 students and teachers took advantage of the educational offerings in almost 100 presentations related to the resources. Additionally, more than 60 teachers have used supplementary materials in their classroom provided by the office. The interest for this assistance continues to grow and expand each year.

The Natural Resources Conservation Service (NRCS) is promoting filter and riparian buffer strips adjacent to the creek and its tributaries using the Conservation Reserve Program (CRP). CRP is an opportunity for farmers to set aside these sensitive areas for ten years and receive money for taking the land out of production. The buffer strips are reducing sediment deposits to the creek and the program is being utilized by the farmers. In Kendall County 25 acres (approximately 30ft x 36,300ft) of filter strip have been seeded to permanent vegetation.

The Kendall County SWCD and NRCS completed two pilot projects with non-agricultural landowners in the fall of 1998. These projects are designed to enable landowners to physically establish the practices using their available equipment and resources. The first project established a filter strip consisting of warm season prairie grasses and forbs. The second project used a variety of aquatic plants with deep root systems to stabilize a pond bank. Both projects have a successful stand of vegetation and are thriving. These sites are going to be used for future tour sites and can serve as models for future applications.

A letter was sent to the Illinois Department of Natural Resources from the Kendall SWCD, Farm Bureau, and the County Board. It requested that the Aux Sable Creek watershed be considered as a Conservation Reserve Enhancement Program (CREP) priority area. The proposed area has received letters of support from Kendall County Board, Kendall County Farm Bureau, Kendall County SWCD, and the Aux Sable Creek Watershed Planning Committee.

In October 1998, the Illinois Department of Natural Resources (IDNR) conducted a biological survey at eight stations on the Aux Sable Creek. The surveyed areas had high Index of Biotic Integrity (IBI) ratings. The segments were identified with a Biological Stream Characterization (BSC) Class A or Class B rating. Overall, 47 species of fish were identified in the survey. This survey demonstrates the diverse population of fish and mussels. Also, the creek showed very good fish habitat for much of its length and the collections of invertebrates and aquatic insects indicates good water quality in the Aux Sable. For more information on the biological survey, the report can be found in Appendix B.

In December 2000, a stretch of the Aux Sable Creek was added to the Illinois Natural Areas Inventory (INAI). The justification for its additions was the presence of an endangered specie and its habitat and the creek rating as a Class A stream. A map identifying the INAI area can be found in Appendix E-6.

The Kendall County Forest Preserve District manages 35 acres of property along the Aux Sable Creek. This property includes 5 acres of picnic/recreation area, while the remaining 30 acres consist of wet mesic woodlands. The Forest Preserve District has begun a management program to improve the quality of the woodlands that includes prescribed burning and thinning of overabundant small trees. A floral inventory of the woodlands was completed in 1999. The inventory is located in Appendix C.

The Grundy portions of the Aux Sable Creek, I&M Canal, and Illinois River watersheds were part of a report addressing the areas subject to serious flooding with these watersheds. The Grundy County Flood Management Task Force members identified the issues that relate to these areas. A technical assistance committee produced the findings and recommendations. This report was presented to the County Board in February 1999 and can be found in Appendix D.

The Illinois Coalition for Farmland Protection (ICFP) is made up of sixteen Soil and Water Conservation Districts from northeast Illinois who share a concern for protecting farmland. Accomplishments and activities include:

- Develop, publish, and promote farmland attributes.
- Publish informational brochures.
- Sponsor Land Evaluation Site Assessment (LESA) workshop for county officials.
- Compiled available farmland conversion statistics.
- Provide public information and education relating to farmland protection.
- Bus Tour

Illinois RiverWatch is the stream-monitoring component of the Illinois EcoWatch Network, a volunteer monitoring initiative coordinated through the Illinois Department of Natural Resources (IDNR). One site in the Aux Sable watershed has been monitored in each of the last two years collecting data related to overall health of the waterway. The stream habitat survey involves recording a number of physical observations of the stream and surrounding riparian area including depth, width, velocity, temperature, turbidity, and other habitat parameters. The biological survey consists of a random sample of macroinvertebrates (aquatic insects, mussels, clams, snails, and worms) found within the stream community. Data collected by "citizen scientists" are submitted to a statewide database that will be used by the scientific community to gauge long-term trends in the environment. A second site and citizen scientists have been identified and recruited for monitoring to begin in 2000.

Component #4 Watershed Resource Inventory

Waterbodies

Lakes - Ponds

There are no significant impoundments located on the Aux Sable Creek.

Streams - Aux Sable Creek

Aux Sable Creek is an intermittent stream (Singh and Ramamurthy 1993) draining approximately 187 square miles (Healy 1979) in Kendall and Grundy Counties. Originating south and southwest of Oswego, the Aux Sable flows approximately 34 miles generally south to its confluence with the Illinois River approximately 5 miles upstream of Morris.

As part of its Ambient Water Quality Monitoring Network, the Illinois Environmental Protection Agency (EPA) routinely collects water quality data on the Aux Sable Creek at Route 6 in Grundy County. As part of this network, samples are collected generally every six weeks (9 x=s/year). The Aux Sable has been routinely sampled since 1979 at this location. Review of water quality results for this station from October 1990 to June 1998 indicated generally good water quality conditions. Sixty-nine discrete sampling dates were reviewed and no violations of general use water quality standards were found. Forty-three fecal coliform bacteria samples were collected during this same period (10/90 - 6/98). General Use Water Quality Standards require the geometric mean of a minimum of 5 samples taken over a period of thirty (30) days not to exceed 200 colonies per 100 mL. This standard applies May through October, during months when contact with stream water could be expected. Although the IEPA sampling routine does not satisfy the requirements of the standard, several bacteria results did exceed the (non-geometric mean) 200-colony count.

The health of a stream can be determined by viewing the health of the biotic population as well as observing water quality. The use of macroinvertebrates to determine the health of a stream is a well-established practice. Pre-adult macroinvertebrates are relatively immobile and therefore can indicate stream conditions in the weeks and even months prior to sampling. IEPA biologists collect macroinvertebrate samples in order to determine the condition of a stream. After the macroinvertebrates within the sample are identified, tolerance ratings for each taxa are applied and a Macroinvertebrate Biotic Index (MBI) value is determined. MBI values range from 1 to 11 with lower values indicating better water quality and/or aquatic conditions. The most recent macroinvertebrate collection of May 1988, resulted in an MBI of 4.8 and a total taxa richness of 29. An MBI of less than 5 is generally considered to indicate very high water quality conditions.

Designated Use

For inventory purposes, the Illinois EPA identifies the Aux Sable Creek as waterbodies ILDW01 and ILDWD01. Both waterbodies are designated as able to support Overall and Aquatic Life Uses. General Use Water Quality Standards, as identified by the Illinois Pollution Control Board (IEPA 1999), apply to Aux Sable Creek.

Designated Use Support

Aux Sable Creek and its tributaries are designated as waterbodies ILDW01 and ILDWD01. In order to facilitate cataloging, the two waterbodies are further broken into nine (9) segments (Table 1). Each of the nine segments were designated as attaining full support for Overall and Aquatic Life Uses according to the Illinois Water Quality Report, 1998 Update (IEPA 1998-a). A total of 21.11 miles of main stem and 75.52 miles of tributaries were assessed.

Table 1. Waterbody specific information for the nine segments of the Aux Sable Creek watershed. (Adapted from Illinois Water Quality Report – 1998 Update, IEPA 1998-a).

WBID	Waterbody Segment	Catalog Unit	Waterbody Name	Size (miles)	Designated Uses	
					Overall [1]	Aquatic Life [2]
ILDW01	DW-01	07120005	Aux Sable Cr.	21.11	Full [3]	Full
ILDW01	TD-64 [4]	07120005	W. Aux Sable Cr.	14.22	Full	Full
ILDW01	DWB	07120005	Collins Run	2.92	Full	Full
ILDW01	DWBA	07120005	Saratoga Cr.	7.34	Full	Full
ILDW01	DWBB	07120005	Valley Run	12.00	Full	Full
ILDW01	DWC	07120005	Walley Run	6.18	Full	Full
ILDW01	DWEA	07120005	Lisbon Cr.	8.57	Full	Full
ILDW01	DWF-01	07120005	Middle Aux Sable Cr.	11.88	Full	Full
ILDWD01	DWD-01	07120005	E. Aux Sable Cr.	12.41	Full	Full

[1] Overall use support assesses all uses.

[2] Aquatic life use support assessments were based on a combination of biotic (e.g. fishery and macroinvertebrate) and abiotic (e.g. water chemistry, fish tissue analysis, sediment chemistry and physical habitat) data generated from IEPA monitoring programs.

[3] Full Support – The water quality meets the needs of all designated uses protected by applicable water quality standards.

[4] Temporary designator for this waterbody segment.

Impairments

All of the 96.63 stream miles within the Aux Sable watershed were identified as obtaining full use support. No impairments were identified (IEPA 1998-a).

Groundwater

Any public water supply within the Aux Sable watershed will have a Phase I well head protection zone. This requires a 1000-foot setback for activities that may result in contamination to the aquifer. All private wells will have a 200-foot setback zone. CWS Wells within the Aux Sable Creek Watershed map (Appendix E-1) identifies 7 wells at Shady Oaks MHP and 3 wells Ridgecrest North Sbdv. Mostly the wells are relatively shallow (30-155') and have a 400-foot setback protection zone. The one deeper well at Shady Oaks is 600 feet deep and has a setback of 200 feet.

Irrigation

The Aux Sable Creek watershed has a few irrigation systems in operation at this time. Sod or nursery crops make up the primary users. The land being irrigated has flatter topography and has less erosion due to the slope and a vegetative cover throughout the year and during peak rainfall events. The sod producers do not add any nutrients or chemicals to the water supply. In Kendall County approximately 1100 acres are being irrigated and 30 acres in Grundy County. Irrigation is not being used on corn, soybeans and other row crops.

Drainage

Soil acts as a natural sponge. The pores in the soil can hold vast amounts of water and delay the release of water to the streams. In their natural condition, the poorly drained or hydric soils were seasonal wetlands that stored excess water. These wetlands slowly released the water throughout the spring and summer. However, most soils that have a seasonal high water table at or near the surface have been artificially drained for agricultural purposes.

The artificial drainage systems are an inter-connected series of perforated plastic tubing or clay tile that are buried in trenches at various depths below the soil surface. Excess water in the soil will move downward to the tile lines and flow to a surface outlet such as an open ditch or stream. In some depressional or low-lying areas there are surface inlets to allow water in these ponded areas to enter the drainage systems. This allows the water to be removed more rapidly from the soil surface. These drainage systems do not permanently or completely remove the water from the soil. The drainage systems were designed to remove excess water from the upper portion of the soil to allow for earlier farming operations in the spring and to allow farming on soils that are too wet in their natural condition. These drainage systems remove water more rapidly from the soil than would occur under natural conditions. However, the release of subsurface water to a stream or ditch following a storm event is delayed by the amount of

time that it takes for the water to infiltrate and percolate through the soil into the drainage system. This discharge of subsurface water, though, does contribute to the excess surface water following heavy rains or wet springs. The excess flow causes more stream erosion and sedimentation and contributes to an increase of flooding.

There is no known current documentation on file with reference to the extent of existing tile systems at the County (note: this information is usually acquired when properties are being developed) or local Soil and Water Conservation District (SWCD) offices. In general, more than 50% of the soils in the watershed are nearly level to gently rolling, somewhat poorly drained soils that formed in silty clay. The majority of soils in the watershed have benefited from tile drainage system installation in order to remove excess water from the upper portion of the soil. This allows for earlier farming operations in the spring on the upper portion of the soil that are too wet in their natural condition. Tile drainage was installed in the early 1900's and improvements to those systems such as repairs or replacement have occurred.

There are no active organized drainage districts in the watershed although there appears to be an interest to address tile outlets that lie submerged beneath the existing channel bottoms in some locations due to excess sediment that has resulted from excess soil erosion.

Surface water runoff is managed using conservation practices such as conservation tillage, grass waterways, grade stabilization structures and riparian buffer strip plantings that farm landowners have applied. These systems safely convey surface runoff to the tributaries of the Aux Sable Creek while minimizing sheet and gully erosion.

Floodplain Boundaries

The Grundy County Flood Management Task Force mission was to identify areas in Grundy County subject to flooding, review Federal Emergency Management Agency (FEMA) maps, identify mitigation measures, and assist in the completion of flood hazard mitigation plans. A report was completed and presented to the Grundy County Board in February 1999. The report addressing the above mentioned issues with findings and recommendations can be found in Appendix D.

Aux Sable Creek Watershed Floodzones map (Appendix E-2) was produced using data published by the Illinois State Water Survey (ISWS) and reprojected by NRCS. The floodzone data layer depicts the 100 year and 500 year floodplains for the unincorporated areas as indicated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate (FIRM) maps and Flood Hazard Boundary maps were digitized from paper maps. The 100-year floodplain is the area of land that has a 1-percent annual probability of flooding and has been adopted by FEMA as the base flood for floodplain management. The 500-year floodplain has a 0.2-percent chance of flooding and is used to indicate additional areas of flood risk.

This data is not accurate enough to be a determination of location. This map shows the distribution and provides guidance as to where floodzones can be found in the Aux Sable Creek watershed. For site specific information, the FIRM panel should be viewed and the specific location of the property. To receive a copy of a FIRM map call FEMA at 1-800-358-9616.

Municipal/Industrial

Six (6) National Pollution Discharge Elimination System (NPDES) permits are issued to facilities within the Aux Sable watershed as follows:

Municipal	Shady Oaks Mobile Home Park, #IL0045951
	IDOT, I-80 #IL0022969
	IDOT, I-80 #IL0047953
	The two Illinois Department of Transportation (IDOT) facilities are designed not to discharge under all but the most extreme rainfall events.
Industrial	Alcoa Extrusions, #IL0034631
	AKZO Noble Chemical, #IL0026069
	Avery Gravel, #IL0060879
	Avery Gravel discharges gravel wash water periodically.

Riparian Corridor

During the fall of 1997 and spring of 1998 a subcommittee of the Technical Advisory Committee completed a stream corridor assessment for Aux Sable Creek. Technical Teams were formed from Natural Resources Conservation Service (NRCS), Illinois Department of Natural Resources (IDNR), and the Conservation Foundation specialists. Technical Teams walked portions of the stream corridor, as well as conducted inspections at road intersections and documented various inventory conditions. Recorded information included existing sediment sources, water quality land use issues, and existing vegetation widths. The resource concerns inventoried were documented on a geographic information system (GIS) map. Concerns range from excessive gully erosion to undesirable species. While the resource information gathered is quite accurate for a watershed level inventory, exact location and design of practices will need further fieldwork. Teams further investigated sites identified as resource problems resulting from a study conducted in June 1997 and prepared by Catherine L. Hejmanowski. This study covers approximately seven miles of the mainstem mostly south of U.S. Route 52 in Kendall County.

Results of the inventory are documented on the Aux Sable Creek Watershed Stream Inventory map (Appendix E-3) and Table 2. Forty-four points representing resource issues are documented. Twenty points identified some level of streambank erosion, while thirteen points demonstrated excessive gully erosion. Sections of the stream corridor were evaluated based upon the width of existing stream vegetation and its relationship to NRCS buffer/filter strip standards. The inventory identified approximately 64 miles that needed filter strips and/or riparian buffer strips. It should be noted that the majority of active erosion sites identified in the June 1997 study failed to be present during this review. This can be attributed to the timing of that study which was conducted a year after the 100-year July 1996 flood event. It can be assumed that these 1996 event sites have had sufficient time to heal.

A minimal amount of the creek has been channelized. In the past, some areas were dredged to form drainage ditches to remove water from the land to allow for farming. Lastly, no natural blockages or debris obstructions were noticed.

Recommendations regarding best management practices (BMPs) are found in Table 2. Recommended practices are based upon the existing resource concerns. Twenty sites of streambank erosion result in the need for twenty areas of streambank stabilization. The exact type of stabilization (structural, vegetation or both) needs to be reviewed on a case by case bases. A majority of the grade stabilization structures needed occur at the intersection of bridge roadside ditches with the stream. Sixty-four miles of buffer/filter strip needs can be met with the conservation reserve program (CRP), land use change and/or conservation easements. Conservation planning assistance is available from NRCS to address animal waste management systems on approximately 600 acres. IDNR is available to assist with forest stand improvement plans on the 800 acres in the creek corridor.

Currently, there is no recommendation to reestablish meanders in the creek.

Debris obstructions should be removed as recommended in the Stream Obstruction Removal Guidelines prepared by Stream Renovation Guidelines Committee and The Wildlife Society and American Fisheries Society. Some debris and fallen trees are natural for a healthy waterway. When the debris obstruction severely restricts flow then it is necessary to remove it. Other obstructions such as dams hinder the flow of fish and sediment can collect behind them. For these reasons, it is suggested they be removed.

Table 2. Stream Inventory Results

Number	Stream Branch	Resource Concerns	Alternative Practices
1	Aux Sable	Excessive Gully	Grade Stabilization Structure
2	Middle Aux Sable	Excessive Gully	Grade Stabilization Structure
3	Middle Aux Sable	Excessive Gully	Grade Stabilization Structure
4	East Aux Sable	Excessive Gully	Grade Stabilization Structure
5	East Aux Sable	Excessive Gully	Grade Stabilization Structure
6	Aux Sable	Streambank Erosion	Streambank Stabilization
7	Middle Aux Sable	Animal waste proximity to creek	Animal Waste
8	East Aux Sable	Animal waste proximity to creek	Animal Waste
9	Collins Run	Undesirable Species	Timber Stand Management
10	Collins Run	Undesirable Species	Timber Stand Management

11	Middle Aux Sable	Undesirable Species	Timber Stand Management
12	Middle Aux Sable	Undesirable Species	Timber Stand Management
13	Middle Aux Sable	Undesirable Species	Timber Stand Management
14	Middle Aux Sable	Seeding poor for wildlife	Wildlife/Grassland Management
15	Collins Run	Livestock in the creek	Livestock Exclusion
16	Valley Run	Livestock in the creek	Livestock Exclusion
17	Aux Sable	Scour Erosion	Critical Area Seeding
18	Middle Aux Sable	Excessive Gully	Grade Stabilization Structure
19	West Aux Sable	Excessive Gully	Grade Stabilization Structure
20	Middle Aux Sable	Excessive Gully	Grade Stabilization Structure
21	Middle Aux Sable	Excessive Gully	Grade Stabilization Structure
22	Middle Aux Sable	Streambank Erosion	Streambank Stabilization
23	Middle Aux Sable	Excessive Gully	Grade Stabilization Structure
24	Middle Aux Sable	Streambank Erosion	Streambank Stabilization
25	Middle Aux Sable	Streambank Erosion	Streambank Stabilization
26	Middle Aux Sable	Streambank Erosion	Streambank Stabilization
27	Middle Aux Sable	Excessive Gully	Grade Stabilization Structure
28	Middle Aux Sable	Streambank Erosion	Streambank Stabilization
29	West Aux Sable	Streambank Erosion	Streambank Stabilization
30	West Aux Sable	Streambank Erosion	Streambank Stabilization
31	West Aux Sable	Streambank Erosion	Streambank Stabilization
32	West Aux Sable	Streambank Erosion	Streambank Stabilization
33	West Aux Sable	Streambank Erosion	Streambank Stabilization
34	West Aux Sable	Streambank Erosion	Streambank Stabilization
35	West Aux Sable	Streambank Erosion	Streambank Stabilization
36	West Aux Sable	Streambank Erosion	Streambank Stabilization
37	West Aux Sable	Streambank Erosion	Streambank Stabilization
38	West Aux Sable	Excessive Gully	Grade Stabilization Structure
39	West Aux Sable	Streambank Erosion	Streambank Stabilization
40	West Aux Sable	Streambank Erosion	Streambank Stabilization
41	West Aux Sable	Streambank Erosion	Streambank Stabilization
42	West Aux Sable	Excessive Gully	Grade Stabilization Structure
43	Valley Run	Streambank Erosion	Streambank Stabilization
44	Valley Run	Streambank Erosion	Streambank Stabilization

The "Baker's Woods plant list" inventorying the forest preserve in the 1999 season can be found in the Appendix C. Additional comments on woodlands in the riparian corridor and elsewhere in the watershed can be found under the 'Woodland' category.

Hydrologic Modifications

Table 3. Stream Structures/Road Crossings in the Kendall County portion of the Aux Sable Creek Watershed.

Branch	Township	Section	Comments
East Branch	Na-Au-Say	15	1984 aerial map indicates dam
East Branch	Na-Au-Say	22	Crossing east of farmstead
East Branch	Na-Au-Say	27	Crossing north of farmstead
East Branch	Na-Au-Say	28	Farmstead crossing
East Branch	Seward	4	Crossing east of housing development
East Branch	Na-Au-Say	34	Farmstead crossing in middle of section
Middle Aux Sable	Seward	9	Farmstead crossing
Middle Aux Sable	Kendall	23	Farm crossing
West Branch	Seward	8	Farmstead crossing

West Branch	Seward	6	Possible structure-1/4 mile north of Chicago Rd.
West Branch	Lisbon	10	Farmstead crossing
Main Branch (from Baker Forest Preserve to the South)	Seward	27	Structure
Main Branch	Seward	28	Structure
Main Branch	Seward	29	Three possible crossings

Road Crossings (many of the roads have several locations where structures are present to allow the Aux Sable to continue)

Kendall

Route 126	Wheeler Rd	Hill Rd
Walker Rd	Schlapp Rd	Sherrill Rd
Caton Farm Rd	Chicago Rd	Route 47
Van Dyke Rd	Route 52	Ashley Rd
Bell Rd	Jughandle Rd	Church Rd
Wildy Rd	Holt Rd	Brisbin Rd
Grove Rd		

Grundy

Route 47	Sherrill Rd
Minooka Rd	Airport Rd
Ashley Rd	Middle Rd
Brisbin Rd	Sand
Route 6	Interstate 80
North Rd	Dellos Rd
Cemetery Rd	

Stormwater Management

Both Kendall and Grundy Counties have stormwater drainage and detention ordinances. Contact the governing county directly to obtain specific information on these ordinances. Some general information was extracted from their ordinances and is as follows. Kendall and Grundy counties have stormwater drainage and detention ordinances with 100-year detention release rates of 0.15 cfs/acre. Grundy County also has a two-year event release rate of 0.04 cfs/acre as recommended by Northeastern Illinois Planning Commission (NIPC), Kendall County does not. In Kendall and Grundy counties, maintenance of stormwater facilities on private property is typically the responsibility of the owner. Both counties require formal stormwater maintenance agreements. Grundy County prohibits on-stream detention unless there is a regional benefit. Kendall County does not address this issue in its ordinance.

Alcoa Extrusions and the Morris Airport have National Pollutant Discharge Elimination System (NPDES) permits issued and monitored by the Illinois EPA to control stormwater runoff from their respective properties.

Wetlands

National Wetlands Inventory for Aux Sable Creek Watershed Map (Appendix E-4) was produced using a data set published and digitized by the IDNR Illinois Natural History Survey from National Wetlands Inventory (NWI) 1:24,000 quad maps. NRCS reprojected the data into UTM zone 16. The United States Fish and Wildlife Service (USFWS) produced the original quad maps.

In this coverage, wetlands and deepwater habitats are identified from 1980-1987 photography and based on USFWS definitions. The deepwater habitats are identified by L1 and R2. Wetlands as small as .01 acres were digitized, however many farmed wetlands were not included.

This data is not accurate enough to be a determination of size, shape, or position. This map shows the distribution and the types of wetlands that can be found in the Aux Sable Creek watershed.

Table 4 lists all of the various wetland types that were identified in the watershed The "Code" column is the symbols for each of the wetland types and the "Count" column provides the quantity of each wetland type. 510 wetlands were identified totaling 2113.83 acres.

Other wetland information can be found on wetland maps at the local Soil and Water Conservation District and Natural Resources Conservation Service offices. These maps have an aerial photography base with wetlands and farmed wetlands indicated on agricultural land.

The above mentioned sources are only guides and indicators where wetlands might be located. For the exact location and size of wetlands, a delineation by the agency with jurisdiction or the advanced identification (ADID) study for both Grundy and Kendall Counties should be done. A property owner can request a wetland delineation on agricultural land from the Natural Resources Conservation Service (NRCS) while the Army Corps of Engineers Rock Island District would be responsible for non-agricultural areas. For a regional inventory, the ADID study would identify high quality wetlands. As part of the study, the value, importance, and function of wetlands would be emphasized. Other benefits of this study are that wetlands could be better protected with set back and buffers or acquired and kept as open space.

Table 4. National Wetland Inventory Summary

Code [5]	General Description	Count	Acres
L1UBHh	Limnetic Lake	5	1.69
L1UBHx	Limnetic Lake	2	33.94
L2UBF	Littoral Lake	1	36.35
PEM/FO1F	Deep Marsh	1	0.07
PEM/SS1A	Shallow Marsh/Wetland Meadow	3	14.62
PEM/SS1C	Shallow Marsh/Wetland Meadow	4	35.98
PEM/SS1F	Deep Marsh	2	33.35
PEM1F	Deep Marsh	2	7.37
PEMA	Shallow Marsh/Wetland Meadow	19	69.64
PEMAdf	Shallow Marsh/Wetland Meadow	5	11.24
PEMAf	Shallow Marsh/Wetland Meadow	104	138.55
PEMC	Shallow Marsh/Wetland Meadow	29	223.92
PEMCd	Shallow Marsh/Wetland Meadow	2	6.41
PEMCf	Shallow Marsh/Wetland Meadow	9	22.33
PEMCx	Shallow Marsh/Wetland Meadow	1	3.48
PEMF	Deep Marsh	29	157.57
PEMFx	Deep Marsh	6	5.48
PFO1A	Bottomland Forest	83	392.79
PFO1Ah	Bottomland Forest	1	1.52
PFO1C	Bottomland Forest	39	399.57
PFO1Ch	Bottomland Forest	1	0.47
PFO1F	Swamp	1	3.64
PSS1A	Shrub-Scrub Wetlands	6	34.84
PSS1C	Shrub-Scrub Wetlands	10	34.68
PSS1F	Shrub-Scrub Wetlands	4	6.91
PUBF	Open Water Wetlands	19	42.28
PUBFh	Open Water Wetlands	1	0.73
PUBFx	Open Water Wetlands	13	57.76
PUBG	Open Water Wetlands	10	40.83
PUBGh	Open Water Wetlands	13	9.75
PUBGx	Open Water Wetlands	68	139.09
R2UBH	Perennial	15	135.72
R2UBHx	Perennial	2	11.29
Total		510	2113.83

[5] The key for the Code can be found in Appendix F.

Fish
Biological Survey can be found in the Appendix B.

Priority Waterbody
The Aux Sable Creek Watershed is **not** designated as a Priority Watershed for any of the following:

- Targeted Watershed Approach evaluation (IEPA 1998-b)
- Environmental Quality Incentives Program (EQIP) Priority Area
- Resource Rich Region (Ecosystem Partnership)
- Conservation Resource Enhancement Program (CREP) Priority Area (ILDWD01 – East Aux Sable Creek Watershed)

A portion of the Aux Sable Creek watershed (ILDW01) was accepted into the CREP priority area in the Fall 2000. Any farm operator or owner can sign up for the continuous Conservation Resource Program (CRP) at any time or the concentrated CRP during the sign-up period.

Soil Classification
Most of the soils in the Aux Sable Creek watershed are dark-colored soils that formed under native tall-grass prairie that developed after the retreat of the Wisconsinan ice sheet. The various parent materials from which the soils formed are loess, glacial till, glacial outwash, lacustrine deposits, limestone bedrock and alluvium. Bryce and Swygert soils are very extensive in the low, broad areas of the Aux Sable drainage basin. They formed in silty clay and clay lacustrine sediments. Bryce soils occur on broad flats, drainageways, and depressional areas. They are poorly drained, which means that they have a water table that is above or near the surface during the spring and much of the year. Bryce soils are also considered hydric soils and they are typical of the wet prairies that existed in Illinois before European immigrants settled the area. The Swygert soils occur on nearly level areas that are slightly higher than the Bryce soils. They are somewhat poorly drained, which means that they have a water table near the surface during the spring. Because of their high clay content, both Bryce and Swygert soils are slowly permeable. Other soils in the watershed that formed in the lacustrine sediments are the Martinton, Milford, and Nappannee soils.

Dark-colored soils that formed in loess and the underlying glacial outwash include the Barrington, Brenton, Drummer, Elburn, Mundelein, Plano, and Proctor soils. Darroch, Jasper and Selma soils are common in the southern part of the watershed adjacent to Aux Sable Creek. These soils formed in loamy outwash deposits. The Starks and Martinsville soils formed under woodland vegetation and have a light-colored or thinner surface. The Starks soils formed in loess and underlying loamy outwash. The Martinsville soils formed entirely in outwash.

Dark-colored soils that formed in loess and the underlying glacial till include the Saybrook, La Rose, Lisbon, Elliott and Varna soils. These soils occur on the terminal and ground moraines. Generally, they are nearly level or gently sloping. The Elliott and Lisbon soils are somewhat poorly drained and have a seasonal high water table within a foot of the surface during the spring. The Saybrook, La Rose, and Varna soils are slightly higher on the landscape, are moderately well drained or well drained and have a potential to erode easily. The Dodge and Strawn soils formed mostly in glacial till. They are light colored and formed under woodland vegetation.

Glacial till deposits are not as thick in the western portion of the watershed, near the town of Lisbon. In places the loess and outwash deposits are less than two feet thick. The well drained Ripon soils have limestone bedrock at depths of 20 to 40 inches. Plattville soils and bedrock phases of Brenton soils and Milford soils occur here, also. These soils are underlain by limestone bedrock at a depth of 40 inches or more.

Lawson soils and Sawmill soils are common within the floodplain of Aux Sable Creek. Lawson soils are somewhat poorly drained and have a water table near the surface in the spring. Sawmill soils are hydric soils, are poorly drained and have a water table at or above the surface for much of the year. Both the Lawson and Sawmill soils formed in alluvium and are subject to frequent flooding.

Soil Erosion
The silty surfaces of most of the soils in the watershed are easily eroded by water, especially in some of the agricultural areas. The erosional sediments are transported in the surface waters and deposited downstream, either in the creek or on the soil surface, reducing both water and soil quality. Sloping soils along the moraines and sloping soils adjacent to Aux Sable Creek have the greatest potential for erosion. They are more susceptible to erosion than

the broad, flat or nearly level areas of the watershed basin. Since most of the slopes are gently sloping, using a method of conservation tillage that leaves the previous year's crop residues on the surface after spring planting can usually control the erosion.

In Aux Sable Creek watershed, approximately 250,000 tons of erosion occurs on an annual basis from the five major types of soil erosion. If this number is divided by the number of acres in the watershed, a rate of about 2.1 tons per acre per year is obtained, when ALL sources of erosion are considered. Of that total, approximately 97,000 tons is actually "delivered" to a concentrated water channel and is "available for further transport". When the STF is applied to this number a total quantity of sediment delivered to the outlet end of the watershed at the Illinois River on an average annual basis is determined. This amount of sediment is estimated to be about 23,300 tons, which at 50 pounds per cubic foot, calculates to be 21.4 acre-feet of sediment deposition on an annual basis. If this sediment total is divided by the total acres in the watershed, then a rate of about 0.2 tons per acre per year is obtained.

Roughly 67 percent of the sediment comes from sheet and rill erosion, 11 percent from ephemeral erosion (channel), 16 percent from gully erosion (channel), and 6 percent from streambank erosion (channel). Remember, though, that sheet and rill sediment comes from all 118,760 acres of the watershed, while the channel sediment comes from only a portion of the entire watershed. These percentages appear to indicate that sheet and rill sediment is a serious problem, but remember that the overall rates of sheet and rill erosion for A/B slopes was only 1.6 T/A/year and for the sloping C slope areas it was still only 4.1 T/A/year. Both these values are considered to be "acceptable" from a soil "protection" standpoint, and really don't offer much potential for future sediment reduction. Also remember that only a small percentage of the sediment produced on the A/B slopes is actually entrained in the stream system. It simply means that in watersheds with low channel erosion, sheet and rill will appear more dominant because of the sheer number of acres. Likewise, there is still much discussion on SDR rates for slopes less than 5%. It is believed presently that SDR base rates of 0.05 to 0.10 may be more appropriate.

The sediment totals listed above are for suspended sediment volumes, since as much as 90 to 95 percent of the quantity of material carried by a stream is of this type. Bedload quantities are time-consuming and expensive to measure. USGS stream gauge stations do not routinely measure or sample this portion of the stream's load. If estimates of bedload quantities are needed, generally a figure of 5 to 15 percent of the total suspended load can be added. For example, if the total suspended load for Aux Sable of 23,300 tons is multiplied times 10 percent and then added on to the total, a value of 25,600 tons could be considered a first-order estimate of total load at the Illinois River. Caution must be used when making this type of estimate.

This is a summary from the soil erosion inventory. The complete report is located in Appendix G.

Geology

The present landscape and soils within the Aux Sable Creek watershed were greatly influenced by continental glaciation. The last major glaciation is called the Woodfordian substage of the Wisconsinan stage, which left this region about 12,000 to 15,000 years ago. These large sheets of ice carried boulders, cobbles, gravel, and soil as the ice sheets advanced and retreated over the previous land surface. When the ice melted it dropped much of its load of rock, sand, silt, and clay. This ice-deposited, unsorted material is called glacial till. Glacial till is a homogenous mixture of sand, silt, clay, pebbles, and boulders that have been somewhat compressed by the weight and pressure of the ice. Glacial till deposits in the watershed are as thick as 100 feet or more. At times, the movement of the glaciers would stagnate. That is, they would grow and melt or advance and retreat at about the same rate. When this occurred, a terminal moraine or ridge of glacial till would develop. The Marseilles Moraine consists of broad ground moraines and terminal moraines and it bounds the northern portion of the Aux Sable watershed. The Minooka Moraine is a well-defined terminal moraine and it occurs along the eastern edge. These moraines are prominent ridges and are easily visible landforms. Ridge Road in Kendall County follows the Minooka Moraine.

As the ice melted, the melt waters carried some of the boulders, rocks and soil and deposited this outwash material across the landscape. Outwash is a glacial deposit that has been sorted by the melt waters. It consists of stratified silts, sand and gravel. In most places in the watershed the outwash deposits are nearly level to gently sloping and overlie the glacial till. Glacial outwash is generally more permeable than glacial till since the outwash was deposited by the melt waters and was not compressed by the weight of the glaciers. The larger outwash deposits in the watershed occur along the southern base of the Marseilles moraine

The moraines or other landforms sometimes trapped the water from the melting glaciers and lakes developed. These lakebed sediments, known as lacustrine deposits, are usually higher in clay and fine silts than the other outwash deposits. Much of the Aux Sable watershed is within an area known as Glacial Lake Wauponsee. Lake Wauponsee covered about 75% of Grundy County and the southeastern portion of Kendall County when the melt waters filled the Illinois River valley and the lowlands to an elevation of about 650 feet. In Kendall County, a broad, nearly level landscape and a high water table characterize the area of this former lakebed.

After the ice retreated and the melt waters subsided, silts were deposited on the land surface by the prevailing winds from the west. These wind-blown silts, called loess, cover most of the land surface in the watershed. The loess that overlies the glacial till and the glacial outwash varies from a few inches to about four feet.

Low broad moraines, prominent, sloping morainal ridges, nearly level outwash plains and broad flat lacustrine deposits characterize the land surfaces that were created by the Woodfordian glaciers in the Aux Sable Creek watershed. The watershed is in the Bloomington ridged plain and the Kankakee plain section of the Central Lowland Province. The watershed is also in the Northern Illinois and Indiana Heavy Till Plain Major Land Resource Area (MLRA 110).

Topography

The relief is mainly nearly level to gently sloping, but steeper areas occur along Aux Sable Creek and on moraines. The elevation is highest on the Marseilles Moraine at approximately 760 feet and lowest where the creek meets the Illinois River at approximately 490 feet.

Land Use

Land Use vs. Land Cover

Land cover data was used to determine the types of cover in the Aux Sable Creek watershed. There is a difference between land cover and land use. Land cover depicts what is on the earth's surface while land use explains the human activity that is taking place there. On land cover data a shopping center would be defined as urban and built up while on the land use map, it is called commercial. Land cover cannot show the type of activity taking place however; there are only a few possibilities. Cropland infers that the land is being farmed and has an agricultural use. Urban and built up lands are defined as areas of impervious surfaces or manmade structures. Residential, commercial, and industrial land uses could be occurring anywhere in the urban and built up land coverage. Despite some similarities, both land cover and land use have distinct meanings and can be used differently.

Aux Sable Creek Watershed Land Cover Map (Appendix E-5) was produced using Critical Trends Assessment Land Cover Database of Illinois, 1991-1995 reprojected to UTM zone 16 by USDA NRCS. This land cover depicts the natural and manmade features present on the earth's surface. The base data was obtained from satellite imagery taken between 1991 and 1995 in addition to other state databases. The coverage accuracy has a detail of 93.5ft X 93.5ft area or approximately 0.2 acres. From this map, the data in Table 5 was obtained.

Table 5. Aux Sable Creek Watershed Land Cover

Land Cover	Subtotals	Acres	Percent of Watershed
Urban Built-up	736		.62%
Urban Built-up High Density [6]		548	
Urban Built-up Medium Density [7]		56	
Urban Built-up Low Density [8]		132	
Cropland	96,751		81.46%
Row Crop [9]		96,246	
Small Grains [10]		505	
Grassland	17,408		14.66%
Urban Grassland [11]		669	
Rural Grassland [12]		16,739	
Woodland	1,792		1.51%
Deciduous, closed canopy		1,319	
Deciduous, open canopy		473	

Open Water	48		.04%
Open Water		48	
Wetland	1,903		1.61%
Shallow Marsh/Wet Meadow [13]		473	
Deep Marsh		198	
Forest Wetland		940	
Shallow Water Wetlands [14]		292	
Miscellaneous	120		.10%
Barren Land [15]		120	
Total	118,758	118,758	100%

[6] All or most of the surface cover is comprised of impervious material
[7] A significant portion of the surface cover is comprised of impervious material
[8] Small amount of the surface area is comprised of impervious material mixed with other land cover such as grassland, woodland, etc.
[9] Corn, soybeans and other tilled crops
[10] Wheat, oats, etc.
[11] Parks, residential lawns, golf courses, cemeteries, and other open spaces
[12] Pasture, grassland, waterways, buffer strips, CRP land, etc.
[13] More grassy, drier then shallow water wetland
[14] Wet most of the year
[15] Quarries, exposed soil surfaces, etc.

Aux Sable Creek Watershed Land Use Description

The Aux Sable Creek originates in Kendall County. The total watershed encompasses 118,758 acres with 92,181 acres in Kendall County, 25,980 acres in Grundy County, and 597 acres in Will County. The land use in the watershed is primarily agricultural. The primary cropping system is a corn and soybean rotation. Small grains and forage production is evident at minimal amounts. The primary livestock production within the watershed is small cow/calf and confinement operations.

About eighty percent of the agricultural land is a corn-soybean rotation with the remainder including small grain and hay. In addition, a small amount of vegetables are being grown in the extreme east and north of the watershed. On the agricultural land conservation practices such as conservation tillage, crop residue management, grass waterways, terraces, water and sediment control basins, contour farming, buffer strips, and streambank stabilization can be found. The Kellogg Farm is designated as an agricultural area with approximately 360 acres.

Public land in the watershed includes Bakers Forest Preserve, Illinois and Michigan National Heritage Corridor, and the Aux Sable Railroad Prairie.

The Morris Municipal Airport is the only airport in the watershed.

Table 6 Communities near the Aux Sable Watershed
Source: 1990 Census of Population and Housing, STF 3.

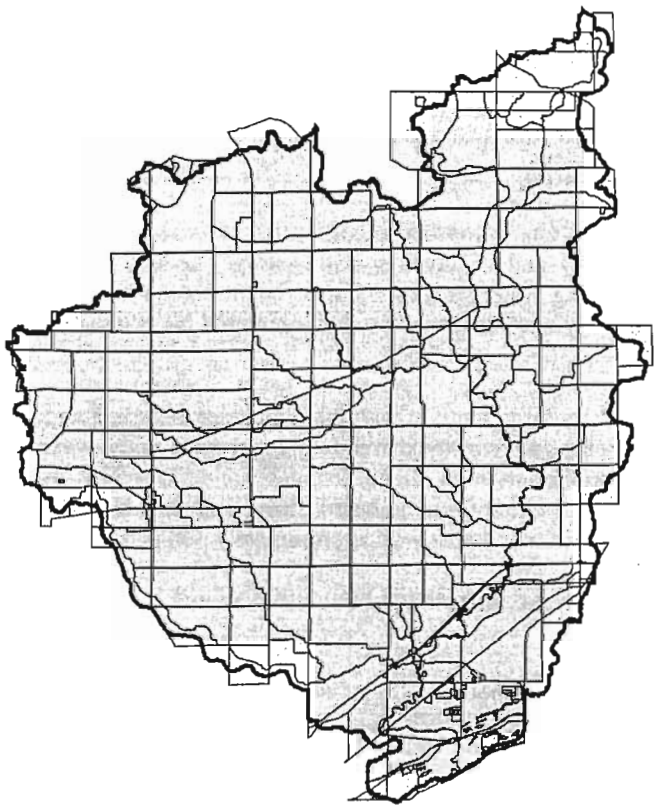
Community	1990 Population	County
Newark	840	Kendall
Oswego	3949	Kendall
Plano	5104	Kendall
Yorkville	3894	Kendall
Morris	10274	Grundy
Minooka	2561	Grundy & Will
Channahon	4266	Will
Joliet	77217	Will
Shorewood	6264	Will
Plainfield	4557	Will

Table 7. Estimated Watershed Population (1990 Census)
Source: 1990 Census of Population and Housing, STF 3.

County	People
Kendall	3740
Grundy	1881
Will	21
Total	5642

The demographic information in Table 7 is just an estimate and was derived from U.S. Census block data. Figure 1 shows the tracts that were used to gather this information. It should be noted that the block tracts and watershed boundary do not match. All tracts completely within the watershed were included as well as tracts where a majority of the area was within the watershed. This resulted in some areas in the watershed not being cover by a tract and other tracts extending over the boundary. The data collected is not an exact representation of the demographics in the watershed, however it is a close approximation for the watershed and provides a good representation for the area in which the watershed is.

Figure 1. Census Blocks



County Demographics

The 1990 Census of Population and Housing indicates 39,413 people resided in Kendall County and 32,337 in Grundy County. There were 13,747 housing units in Kendall County and 12,652 in Grundy County. The median family income was $73,600 in Kendall County and $61,900 in Grundy County (HUD FY99 estimate). See Table 8.

The population in Kendall County has increased 49% since 1970. Grundy County growth in each decade since 1950 has exceeded 15%. Both counties have also experienced a decline in their designated rural populations and an increase in their urban populations. Since 1970, Kendall County's rural population has declined nearly 15%; Grundy County's rural population has declined 7%. Suburbanization is expected to continue. County plans project a 2010 population in Kendall County of 56,558 and at least 35,000 in Grundy County. See Table 9.

Table 8. County Demographics
Source: 1990 Census of Population and Housing, STF 3; 1997 Census of Agriculture.

	Kendall County	Grundy County
Population		
1990	39,413	32,337
1980	37,202	30,582
1970	26,374	26,572
Under 18 years	11,793	8,936
65 years and over	3,436	4,171
Land area, square miles	321	420
Population density, persons per sq. Mile	123	77
Number of farms (1997)	441	463
Average size of farms (acres)(1997)	380	435
Estimated market value of land:		
$ per acre 1992	2,727	1,965
$ per acre 1997	3,994	2,974

Table 9 Projected County Population
Source: Kendall County Land Resource Management Plan; Grundy County Land Use Plan, 2010 update.

County	2000	2010	2020
Kendall	49,552	56,558	66,626
Grundy	35,418	35,000-42,000	Not avail.

The complete report of all planning concerns and recommendations is in Appendix H.

Air Quality
Four manufacturing facilities, all located in the lower Aux Sable watershed downstream of Rt. 6, are permitted by the Illinois EPA for air emissions. Akzo Nobel produces chemical amines. Alcoa Extrusions is an aluminum rolling plant. Equistar Chemicals and Cogen America produce plastics. Seventeen additional facilities within the basin are permitted as storage facilities (propane, fuel oil, etc.). Two significant facilities are located just south of the Illinois River near Aux Sable Creek. Midwest Energy, Collins generating station is an electrical power peaking station burning natural gas. Reichold Chemicals produces plastic resins and adhesives.

Wildlife
Currently, the Illinois Department of Natural Resources (IDNR) conducts three different wildlife surveys within the watershed. The upland species audio count, the upland species visual count, and the dove counts. The audio count is conducted in April or May. The visual count and dove counts are conducted in August. The upland species counts are primarily for Ringneck Pheasant or Bobwhite Quail depending on what part of the state you are in. During the counts, rabbits, crow, partridge, turkey, kestrel, hawks and any threatened and endangered species are surveyed.

The survey demonstrated that the entire watershed is used by many different species of wildlife. The surveys are primarily focused on terrestrial species. Naturally and non-naturally occurring species are evident within the watershed landscape. An entire inventory of all terrestrial and non-terrestrial species within the watershed is currently not available.

Wildlife populations depend on quality habitat. The Aux Sable Creek watershed still has many areas of high quality habitat existing. The primary land use of the watershed is agricultural. Programs such as conservation tillage, no-till, crop rotations that include small grains and forage, Conservation Reserve Program (CRP), field windbreaks, and shelter belts all would decrease point and non-point pollution while increasing habitat for wildlife.

The majority of the watershed at pre-settlement was native prairie. Any establishment of prairie or grasslands on the agricultural areas or along the stream would be beneficial. Woodlands within the watershed primarily exist along the

stream, fence rows, and farmsteads. Woodland management along with timber stand improvement would greatly improve wildlife habitat. Riparian corridors of desirable tree and shrub species should be established wherever possible. Filters strips of either warm season or cool season grasses should be established. Landowners should be encouraged to enroll in CRP (continuous or concentrated sign up) if their land qualifies. Other programs such as Environmental Quality Incentives Program (EQIP), Wildlife Habitat Incentives Program (WHIP), and Conservation Reserve Enhancement Program (CREP) could also improve many acres.

Socio-Economic/Human Resources

Watershed Demographics

The estimated watershed population based on the 1990 Census of Population and Housing is 5,642 people, of which an estimated 3,740 people are in Kendall County, 1,881 are in Grundy County and 21 are in Will County. The rural villages of Helmar, Lisbon, Lisbon Center, and Plattville are in the watershed, along with a small portion of Minooka. Of these, Lisbon is the only incorporated municipality located entirely within the watershed. The population density of the watershed is 4.5 people per square mile.

Although the watershed is largely agricultural, it is experiencing suburban residential and commercial development due to its location near the Aurora/DuPage and Joliet-Shorewood/Will County growth areas. Rapidly growing communities near the Aux Sable include Channahon, Joliet, Oswego, Newark, Minooka, Morris, Plainfield, Shorewood, and Yorkville.

Table 10. County Demographics
Source: 1990 Census of Population and Housing, STF 3; 1998 County and City Extra Annual Metro City and County Data Book; 1997 Census of Agriculture.

	Kendall County	Grundy County
Percent with High School Education	83.7%	79.0%
Percent with Bachelors Degree	17.8%	12.5%
Median household income (dollars)	42,834	35,728
Below poverty level	1,327	2,116
Housing units, occupied	13,301	11,979
Median housing value (dollars)	99,700	71,900
Operators by principal occupation (1997):		
Farming	274	284
Other	167	179
Farm operators whose principal occupation is farming (1992)	63.0%	60.6%
Unemployment rate (percent of civilian labor force in 1996)	4.1	6.7
Agricultural land in farm acreage (1992)	178,000	226,000
Percent change 1987-1992	-4.4	-4.9

Roads and Bridges

Highways and bridges within the Aux Sable Creek watershed in Kendall County are in generally good condition. The impact of flooding has been relatively minor. The significant rain event in 1996 actually proved that most structures could adequately handle even unusually large rain events without severe damage.

Kendall County and/or County Road Districts usually replace 1 or 2 bridges within the Aux Sable Creek watershed each year. These new structures are normally single span or small 3-spans; they generally do not include significant disturbance of the existing stream; and finally, they are designed to pass large rain events without compromising the integrity of the structure.

Obstructions consisting of brush, trees, or agricultural crops in or near the stream are removed by the agency having jurisdiction over the bridge. However, this type of maintenance of the bridge structures and the streams is limited to work that can be performed within the limits of the existing right-of-way (normally a total of 60 to 100 feet).

Woodlands

Aux Sable Creek watershed woodlands were once a diverse ecosystem of mixed bottomland hardwoods stretching out to mixed hardwood stands on the uplands. These stands have degraded over the years due to lack of fires, heavy cattle grazing, and poor cutting practices.

Tree species today include bur, white, red, and black oaks, black walnut, hickory, ash, black cherry, sycamore, hackberry, basswood, sugar maple, silver maple, box elder maple, cottonwood, and elms.

In many places garlic mustard, gooseberry, and multiflora rose have spread throughout the understory. Native woodland wildflowers still exist but are disappearing rapidly.

Even though the forests of the Aux Sable have been degraded, there is a great potential for recovery. Forest management programs that include burning, reforesting, and cutting practices will emulate nature and help restore these native systems.

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Component #5 Problem Statements

1. Economic loss for homeowners and farmers (flooded basements, building, and cropland) when the creek floods.
2. Lack of education on floodplain management (building, digging, filling) as well as areas prone to flooding and high water table.
3. Urban development causes more impervious surfaces, higher rates of runoff, and maintenance issues that needs to be addressed by stormwater management planning.
4. Flooding leads to safety hazards for bridge crossings, roads, and basements.
5. Houses and other developments are being built on prime farmland.
6. Absence of agricultural areas.
7. Lack of natural areas and open spaces with native vegetation to increase the infiltration of water and filtration of pollutants.
8. Lack of economic incentives for urban people to establish grasses or trees in riparian areas.
9. Some future homebuyers are not aware of the natural areas and the benefits to the environment and the watershed as well as the farming practices or no tolerance (i.e. slow moving vehicles, spraying and drift, and smells).
10. Urban development causes more soil erosion and sedimentation from construction site.
11. There is not a greenway plan or greenways have not been identified.
12. A lack of riparian buffers allows sediment and nutrients that would have otherwise been filtered out to enter the stream which causes degradation of water quality.
13. Gully erosion has resulted in a loss of prime farmland and economic returns to the producers as well as causes soil loss that degrades water quality.
14. Lack of grade stabilization structure for the surface water to safely enter into the stream has potential detrimental effects on human safety and farmability.
15. Lack of education on streambank stabilization practices.
16. There are natural (fallen trees) and manmade obstructions that impede the flow of the creek in high stages.
17. There is no certification of what is or is not a wetland.
18. Lack of education regarding the identification and laws governing wetlands in the Aux Sable Creek watershed.
19. The lack of riparian areas with trees or grass limits wildlife habitat diversity.
20. Wildlife and their habitat are disrupted during flooding events.
21. Water carrying sediments impacts aquatic habitat.
22. There is a limited number of citizen involvement in the watershed plan development.
23. Paint ball cartridges litter the creek.
24. Rainwater runoff increases fecal coliform levels and increases N2 levels at selected stream sites.

Component #6 Goals and Objectives

Goal # 1: Reduce the economic loss for homeowners and farmers when the creek floods.

Objective # 1: Implement the best management practices that would reduce the flood damages. There is no one practice that would achieve this.

Goal # 2: Increase the level of education on floodplain management as well as areas prone to flooding and high water table.

Objective # 2: Distribution of the watershed resource plan and provide materials to homeowners, developers, and educators.

Goal # 3: Reduce stormwater release from new construction.

Objective # 3: Implement practices that would allow for more infiltration and detention of stormwater and the creation of countywide stormwater management plans.

Goal # 4: Reduce safety hazards caused by flooding at bridge crossings, roads, and in basements.

Objective # 4: Educate public on the hazards associated with flooding and the installation of signs identifying possible hazards. Advocate public funds for solutions to reduce hazards caused by flooding.

Goal # 5: Reduce development on prime farmland.

Objective # 5: Support conservation groups that advocate the preservation of prime farmland and promote developments that retain farmland. Education the importance of prime farmland and what it is.

Goal # 6: Increase the number of agricultural areas.

Objective # 6: Promote the creation of agricultural areas by distributing information.

Goal # 7: To increase the number of natural areas.

Objective # 7: Support forest preserve acquisition and the development of conservation easements.

Goal # 8: Increase the economic incentives for urban residents to establish native vegetation.

Objective # 8: Create a program that would supply seed and technical assistance to these residents and promote other existing sources for seed and assistance.

Goal # 9: Educate homebuyers about the environment, the watershed and the farming community.

Objective # 9: Provide homebuyers with materials and information about the environment, the watershed, and farming community.

Goal # 10: Reduce soil erosion and sedimentation from construction sites.

Objective # 10: To promote best management practice on the construction site.

Goal # 11: Establish a greenway plan.

Objective # 11: Encourage the counties to create a greenway plan that would identify the location of trails and parks.

Goal # 12: Increase the use of riparian buffers to reduce the sediments and pollutants from enter the waterway.

Objective # 12: Support the NRCS and SWCD efforts to establish riparian buffers.

Goal # 13: Reduce gully erosion.

Objective # 13: Implement BMPs.

Goal # 14: Continue to identify sites in need of grade stabilization structures.

Objective # 14: Support the current efforts of NRCS and SWCD who are working with farmers to install structures.

Goal # 15: Identify sites in need of streambank stabilization.

Objective # 15: Support the current efforts of NRCS and SWCD who are working with landowners to stabilize streambanks.

Goal # 16: Reduce the number natural and manmade obstructions that impede the flow of the creek in high stages.

Objective # 16: Maintain the natural flow of the creek as recommended in the 'Stream Obstruction Removal Guidelines' and discourage man made obstructions.

Goal # 17: Identify wetlands.

Objective # 17: Support the creation of the advanced identification (ADID) programs for both Kendall and Grundy counties.

Goal # 18: To increase the education regarding the identification and laws governing wetlands in the Aux Sable Creek watershed.

Objective # 18: Education through brochures and about the permitting process.

Goal # 19: To improve wildlife habitat areas by promoting riparian vegetation.

Objective # 19: Educate the public with information and a demonstration site that shows the practices.

Goal # 20: Reduce the risk of disruption.

Objective # 20: Promote the establishment of wildlife habitat on upland areas.

Goal # 21: Reduce the impact of sediment on aquatic habitat.

Objective # 21: Promote the use of conservation practices that stop the detachment of soil particles that erode into the creek.

Goal # 22: Increase the amount of involvement by improving outreach efforts in the watershed.

Objective # 22: Hold public meetings, monthly meetings with presenters, tours, demonstration site, fairs, workshops, and presentations.

Goal # 23: Reduce the number of paint ball cartridges.

Objective # 23: Work with the operators to develop a solution to eliminate cartridges from leaving the site.

Goal # 24: To implementation nutrient management plans with producers.

Objective # 24: Support the current efforts of NRCS and SWCD who are working with farmers to develop management plans.