

Kankakee **RIVER** ROUNDTABLE



Conveners



December 2011



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**KANKAKEE RIVER
BASIN
COMMISSION**

**DENNIS & GEORGIA HESS
FOUNDATION**



INTRODUCTION

“The River is Kankakee County’s biggest asset.”

This statement is made frequently and by many in the region. Depending on who is saying it, it means many things. Whether it is a resident who relies on the river for drinking water, a farmer for irrigation and drainage, or a wildlife enthusiast, each considers the river important for various reasons.

The future growth and economic vitality of the Kankakee region is dependent upon the Kankakee River. As the River goes, so does the Kankakee County region. It is with this premise that the River Roundtable committee was formed to: evaluate the many ways the River is integrated within the community, identify barriers and threats, and to formulate a comprehensive and integrated community approach to enhance and maximize this true community asset.

This report serves several purposes, including:

1. Unifying the Kankakee County community around a common cause
2. Providing an educational platform for local residents and key elected officials to receive updated and factual information
3. Identifying and summarizing important studies and articles of the River
4. Providing a summary of the strategic planning process performed to identify the River’s strengths, weaknesses, opportunities, and threats
5. Developing a short-, medium-, and long- range plan for the River and the Kankakee County community as it relates to river issues.

Economic Alliance & Community Foundation of the Kankakee River Valley – Composition of the River Roundtable

The **Economic Alliance of Kankakee County** and the **Community Foundation of the Kankakee River Valley** initiated the River Roundtable and serve as co-conveners for this effort. The River Roundtable is comprised of volunteer community residents interested in a wide array of issues concerning the Kankakee River. The Roundtable includes elected and governmental officials, riverfront property owners, environmental stewards, developers, and recreation enthusiasts, among other entities represented include; the Kankakee River Basin Partnership, the Soil & Water Conservation District, the Kankakee County Farm Bureau, and Aqua Illinois, Inc.



Why a River Plan?

In the fall of 2009, the Economic Alliance of Kankakee County and the Community Foundation of Kankakee River Valley began early discussions on river issues and opportunities. Quickly, it was concluded that the community was ripe for a comprehensive and concerted effort to organize and define what it really means when we say, “The river is our biggest asset.” In framing the project, it was also determined that the communities lacked a comprehensive strategy focusing specifically on river matters and the various ways the river impacts lives.

It is acknowledged that many entities and individuals have devoted countless hours to river efforts: including planning, clean ups, and environmental advocacy. These entities and individuals should be applauded for making the Kankakee River their priority cause, and they are to be recognized for their efforts of the past and future. By no means do these efforts attempt to circumvent or replace the long established projects, programs, and groups. The Roundtable plans, goals, and recommendations set forth through this process are to:

- Reinforce and help consolidate a community-wide approach to a sustainable river system
- Evaluate and recognize the impact of the river as an integral aspect of everyday life of the residents
- Recognize past efforts and determine ways to coordinate future efforts
- Build a county-wide and regional advocacy coalition with current and factual information

The Process

Any planning process begins with collecting and disseminating information pertaining to the subject at hand. Very early in the data collection process it was found that information on the Kankakee River was voluminous and, to a certain extent, scattered among various sources. As a result, one of the very first projects of the River Roundtable was to access available studies, articles, and other printed documents about the river. The primary sources of the information were provided by J.R. Black, Chairman of the Kankakee River Basin Commission (Illinois) and the NIAA Gordon Graves’ Environmental Collection stored at Kankakee Community College’s library. Once collected, the information was scanned and put on a CD to be a part of the reference material for this



document. This effort resulted in the first comprehensive collection of Kankakee River materials ever assembled.

After data collection, the organizational approach by the Roundtable group was typical of other strategic planning processes. During the early months of 2010, the Roundtable met and established general goals. The general goals focus on specific aspects of the river that the group agreed was the most important. The key aspects selected were:

- Environment & Agriculture
- Economic and Community Development
- Tourism & Recreation

The group believed goals should focus on a Public Education & Outreach component and a “*balancing policy*” to recognize the need to establish policies in harmony with the needs of people of varying interests and priorities such as recreation, industry and agriculture. The balancing intent acknowledges that communities need public work projects to support growth, and river policies should not be established to the exclusion of previous efforts.

With these key principles identified, the Roundtable formed smaller working groups to conduct a SWOT¹ analysis during the month of March 2010. The results of this exercise are found later in this document. With the information collected, the Roundtable developed a short, medium, and long-term action plan.



The River Roundtable General Goals Include:

- Environment & Agriculture

Stabilize water and land resources; improve water quality; preserve high quality natural resources; restore and nurture native animals and degraded habitats; protect prime farmland.

- Economic and Community Development

Strengthen the County's economic base by identifying and promoting opportunities; cultivating land uses, encouraging urban infill and redevelopment and promoting more compatible land uses by integrating the River and the community's physical needs and civic character.

¹ Strengths, Weaknesses, Opportunities, and Threats

- Tourism & Recreation

Strengthen and enhance tourism and recreational opportunities throughout the Kankakee River Basin.

- Public Education & Outreach

Improve public education; reach out to regional partners and organizations; act as Kankakee River advocates with local, state, and federal officials to advance river initiatives. Serve as the central clearinghouse to advance river priorities

- Policy

Ensure policies and actions are balanced and can co-exist in harmony with the people of the county, agriculture, and industry among other interests identified herein. Acknowledge the public works needed to support the people of Kankakee County. If at all possible, build unified coalitions of support for shared goals, projects, and actions.



Kankakee River looking south from Cobb Park, Kankakee, IL.

GEOGRAPHY, GEOLOGY & HISTORY

Geography²

The Kankakee River is a tributary of the Illinois River that travels for approximately 150 miles through northwestern Indiana and northeastern Illinois. It begins as a small stream approximately 5 miles southwest of South Bend, Indiana and ends at its confluence with the Des Plaines River near Channahon, Illinois, where the two rivers join to form the headwaters of the Illinois River. As the river treks through Illinois and Indiana, it passes through rural farmland, wooded areas, swamp land, and numerous communities, the largest of which are the cities of Momence and Kankakee, and the Villages of Bradley and Bourbonnais, all in Illinois.



Headwaters of the Kankakee River near South Bend, IN.
(http://en.wikipedia.org/wiki/Kankakee_River)

The Indiana portion of the river stretches for approximately 90 miles and passes through the counties of St. Joseph, La Porte, Starke, Porter, Jasper, Lake, and Newton. The river in Indiana travels a fairly straight path with little meandering. This is due to channelization for agricultural drainage in the early 20th Century. As it travels westward, the river passes near a few small, rural settlements but is mainly surrounded by farm fields and agricultural operations.

In Illinois, the river follows a more natural path that meanders westward in much the same manner that it has throughout its history. It enters Kankakee County just north of Illinois Route 114 and travels westward through Momence Township passing through the City of Momence. Many of the original oxbows can still be seen along this stretch of waterway. At the City of Momence, the river begins to turn southwest and travels toward the Village of Aroma Park until it reaches its confluence with the Iroquois River on the west side of the Village. From this confluence, the river turns northwest and travels through the City of Kankakee and the Villages of Bradley and Bourbonnais before continuing through the Kankakee River State Park. After the river passes through the State Park, it continues northwestward through the City of Wilmington in Will County until it meets the Des Plaines River near the Village of Channahon.

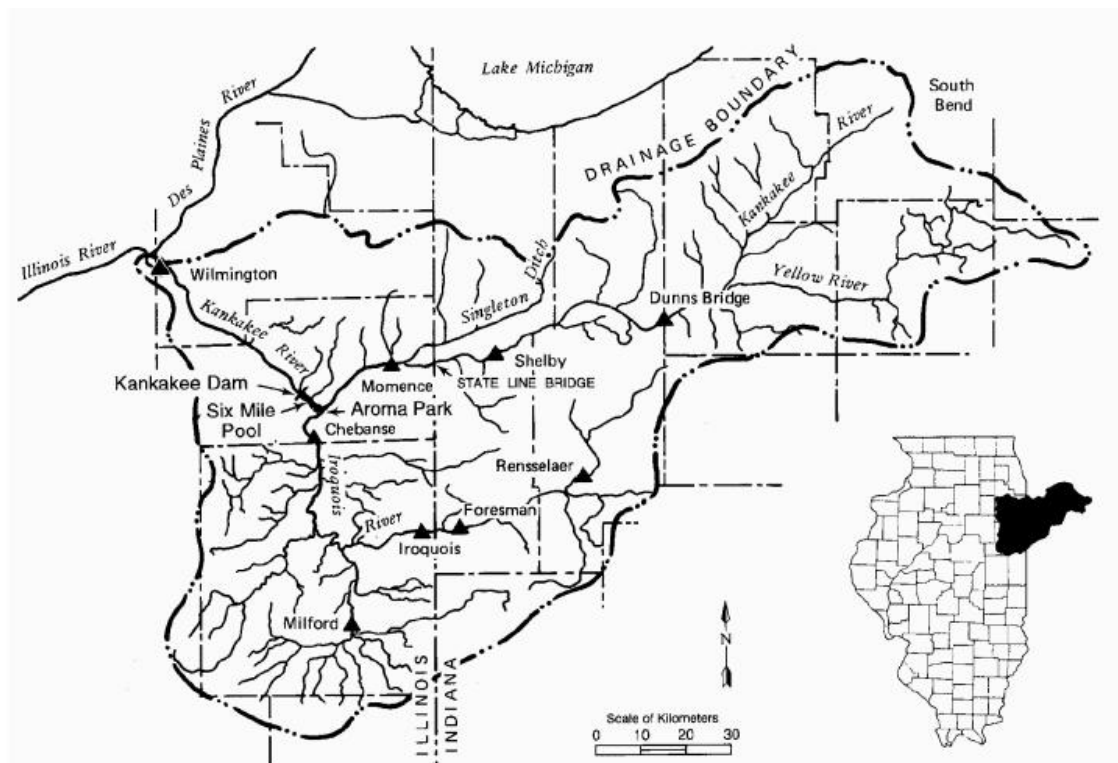
The Kankakee River also passes through the Grand Kankakee Marsh near the Indiana / Illinois Border. At one time, this marsh was one of the largest freshwater wetland complexes in North America stretching several miles on each side of the state line, encompassing 500,000 acres in eight counties.

²Kankakee River – Wikipedia (http://en.wikipedia.org/wiki/Kankakee_River)
Illinois Department of Natural Resources – Kankakee River State Park
(<http://dnr.state.il.us/lands/Landmgt/PARKS/R2/KANKAKEE.HTM>)

The original river, with its many twists and turns, traversed a 240 mile course to travel the 90 mile distance from South Bend, IN to the Illinois State Line. Today, the Indiana side of the river is a channelized man-made ditch staying straight for many miles between small bends. All of the natural meanders were removed in the early 20th Century to accommodate drainage for agricultural production. This action reduced the Marsh to a fraction of its original size. The Kankakee River Basin encompasses 5,165 square miles of which, 2,169 are in Illinois and 2,996 are in Indiana. Major tributaries to the Kankakee River which help to form the River Basin are the Yellow River in Indiana and the Iroquois River and Singleton Ditch both in Illinois. It should be noted that although the Singleton Ditch meets the Kankakee River in Illinois, the majority of its drainage basin lies in Indiana.

In Kankakee County, the river basin supplies potable water to approximately 80,000 residents with an average usage of 12,000,000 gallons per day.

Figure1: Kankakee River Drainage Basin



Source: The Kankakee River Drainage basin in Illinois and Indiana.
 The Kankakee River Yesterday and Today; Ivins, Bhowmik, Brigham, & Gross -1981
<http://www.isws.illinois.edu/pubdoc/MP/ISWSMP-60.pdf>

Geology³

Along with the effects of human interference and the continuous assaults by natural events, the geology of the river basin plays an important role in the shaping of the Kankakee River. The geology set the foundation for the river and also its limitations.

In 1978 and 1979 the Illinois Geological Survey studied the geological history of the river and its basin. This study focused on the stretch of the river from the Indiana State line to the City of Kankakee.

The study found that a mantle of glacial deposits overlaying Paleozoic bedrock formed the majority of the geologic material in the basin. This bedrock consists primarily of Silurian-age dolomite in Illinois, but in Indiana most of the bedrock is Devonian-age shale.



Limestone outcrop at Kankakee River State Park.

The melting of the last continental glaciers is responsible for the present day topography and surface materials. This event occurred during a period from 16,000 to 13,000 years ago (known as the later portion of the Woodfordian Sub-stage of the Wisconsinian Stage). During this event the retreating glacial lobes created numerous moraines which include the Valparaiso moraines located in the northern portion of the basin.

The most important event that shaped the landscape into what we know it to be today was the ancient “Kankakee Flood”. During the formation of the previously mentioned moraines, the water melting from the Lake Michigan, Saginaw, and Erie lobes drained into the Kankakee Valley and flooded it because it was trapped by the Marseilles moraines in the Illinois Valley to the west. Water spread over the uplands and formed Lake Wauponsee, Lake Watseka, Lake Ottawa, and Lake Pontiac. These lakes drained soon after the glaciers finally melted. The survey found evidence of these lakes in the fine-grained lacustrine sediment found throughout most of Iroquois County in Illinois. A thick band of sand was deposited along the Kankakee between the City of Kankakee and South Bend, Indiana. This band, it is believed, is the primary source of the sedimentation now infiltrating the Kankakee River.

The Kankakee River Yesterday and Today; Ivens, Bhowmik, Brigham, & Gross -1981 – (<http://www.isws.illinois.edu/pubdoc/MP/ISWSMP-60.pdf>)

The Kankakee Torrent – (<http://geography.about.com/library/misc/uckankakee.htm>)

Indiana Grand Kankakee Marsh Restoration Project – (http://www.igkmp.org/marsh_history.htm)

Kankakee River State Park Master Management Plan, Illinois Department of Conservation, 1978

Geology of the Kankakee River System in Kankakee County, Illinois, Gross & Berg, 1981

As the flood water began to subside, and after a gap in the Marseilles moraines eventually eroded, water flow became more centrally located in the valley, and the river cut broad areas down to the bedrock. This action also deposited bouldery material and rubble in areas downstream from the City of Kankakee.

As the Kankakee River began to take shape, sandy outwashes were exposed to eolian (wind) activity, and dunes began to appear. In modern times, deposits of silt, sand, and gravel continue to shape and reshape the character of the river as they are transported downstream during flooding events.

The Kankakee River of today travels over thick deposits of sand that overlay the bedrock. The exception to this is a several mile stretch near Momence and a two mile stretch upstream from Aroma Park. In these two stretches of the river, water is flowing directly over the bedrock. There is a misconception in the area that the rock ledge at Momence is a single obstruction that can be removed when in fact it is a four-mile-long stretch of bedrock.

History

The Kankakee River was born from melting ice water combined with rock and debris deposits from the last continental glaciers as they retreated toward their respective basins. This glacial process occurred over a 1-to-2 thousand year interval between 22,000 and 12,500 years ago.

Humans have called the Kankakee River Basin home since before recorded history. Native Americans lived in harmony with the river and its ecosystem, utilizing it for food, water, and transportation. Several prehistoric sites located in the Kankakee River State Park suggest utilization by early Native American Tribes. By the time the first European explorers reached the area in the 1670's and 1680's the region was occupied by the Illini and Miami Indians. In fact, by 1685 the Miami Indians were so numerous in the area that the Kankakee River was known as the "River of the Miami".



The first known European explorers to traverse the Kankakee River were De LaSalle, Tonti, and Father Hennepin whose expedition traveled the waterway in 1679 arriving at the mouth of the Illinois River in January, 1680.

It is popularly believed that the river owes its name to the Potawatomi Indians who inhabited the river basin from the 1760's to the early 1800's when they were forced to move west after the Treaty of Tippecanoe. To these early inhabitants, the river was known as Ti-yar-ac-ke which is thought to mean "wonderful land". Although this is the widely accepted version, another version of the naming of the Kankakee was found in a book by Lorenzo Werich entitled Pioneer Hunters of the Kankakee.⁴ Published in 1920, this book states that the original Indian name for the river was The-Ak (wolf) and A-Ki-Ki (land) literally meaning Wolf Land River. The passage in the book states that this name refers to a Mohican Indian Tribe that took refuge on the banks of the river when they were driven from their homes by the Iroquois Indians. The book further substantiates this claim by stating that Charlevoix, the French missionary, on his voyage down the Kankakee River in 1721 speaks of the "wolves" in his chronicles of the trip.

Regardless of the origin of the Indian pronunciation and interpretation of the name, the current spelling of the name originates with the French explorers and trappers who traveled the area in the 1700's. These early visitors converted the Indian name(s) to a French pronunciation, usually The-a-ki-ki or Quin-qui-gui. Eventually the French pronunciation was translated to an English version forming the name we know today.



Postcard depicting Kankakee River, circa 1909.

As stated previously, the defeat of the Miami Indians during the Black Hawk War and the subsequent enactment of the Treaty of Tippecanoe in 1832 ended the era of Native American habitation of the Kankakee River basin. The Indians ceded most of their land along the Kankakee, save a few reservations, to the federal government. As part of the agreement, the Native Americans were relocated west of the Mississippi River. By the early 1840's nearly all of the aboriginal inhabitants of the area had been relocated.

This treaty opened the way for the region's next inhabitants. Shortly after the signing of the Treaty pioneer settlers began to inhabit the river basin usually establishing settlements along the fringes of the great swamp. These early settlers hunted and trapped along the Kankakee River and utilized the waterway as a primary mode of transportation.

Next came the prairie farmer, and the character of the area was slowly and systematically altered to accommodate the needs of these new inhabitants. Along with these early farmers came commerce. Traffic on the river increased in

⁴Pioneer Hunter's of the Kankakee, Werich, 1920

the form of flatboats and steamboats carrying sightseers, hunters and cargo up and down the Kankakee River. Hunting and trapping increased along the waterway to feed the commercial markets of Chicago and New York, and ice companies began to harvest the thick, clear ice from the river. There was even a plan to build a series of locks and dams to connect the river with the Illinois and Michigan Canal. None of these activities, however, had as lasting and irreversible impact on the river basin as the initiatives to drain the lowlands and channelize the river.



There were repeated attempts to drain the swamplands beginning with the individual farmers who dug ditches by hand to governmentally-funded programs and projects. In the early days, construction equipment was ineffective, and drainage improvements were prohibitively costly until the invention of the steam dredge in the mid 1800's. This new invention, coupled with the passage of legislation allowing the formation of drainage districts, empowered them to levy taxes to overcome the previous limitations, and the draining of the Grand Marsh began to occur.

In 1866, the Singleton Ditch was constructed, and the Ackerman, Hayden, and Brown Ditches in Indiana also appeared around that time. These new ditches enjoyed limited success in draining the swamp, and it was thought, at the time, that the removal or lowering of the natural limestone rock ledge near Momence, IL was the key to successfully draining the marsh.

The U.S. Army Corps of Engineers made the first of several studies to improve navigation on the Kankakee River in 1878 and 1879. The conclusion of most of these studies indicated that the cost of the improvements could not be justified for navigation.

In 1882, another study performed for the State of Indiana suggested three projects that could be constructed to drain the swamp. They were:

1. Construct a better main channel for the flow of the river.
2. Straighten and deepen the tributary streams.
3. Digging numerous lateral ditches through the swamp.

Based on this study, the State of Indiana appropriated \$65,000 to widen and deepen the main channel of the river near Momence in 1893. The work included

a channel about 1 ½ miles long, 300 feet wide and about 2 ½ feet deep. Convinced that the rock ledge near Momence was the root of the problem, the State of Indiana also removed 66,447 cubic yards of rock from the waterway. This action did not solve the problem, and the increased rate of runoff, erosion, and downstream flooding exacerbated the problem.

Public and private groups in Indiana then took up the charge of draining the swamp. Through their efforts, 46 miles of the main channel had been straightened in the upper reaches of the river near South Bend by 1906. This work continued for nearly a decade, and by 1918 the original 250-mile-old channel had been replaced by a straightened, deepened channel only 82 miles in length running from South Bend to the Illinois State Line. The average slope of the river had been increased from 0.45 feet per mile to 0.83 feet per mile. These improvements reclaimed nearly 400,000 acres of swampland and 600,000 acres of marginal land at a cost of nearly \$1.2 million. The Grand Marsh had been conquered, and now only a remnant of its past existence remains.

On the Illinois side of the line, with the exception of the work done on the rock ledge and the dams at Momence and Kankakee, the river remained in its natural state.

Not everyone was pleased with Indiana's accomplishment. There were still concerns, especially in Illinois, about the impact the channelization would have on downstream reaches of the river and on the destruction of the natural ecosystem. It was also evident that the drainage problems had not been completely solved. Severe flooding still occurred east of the Momence rock ledge, and discussion centered on the further removal of the rock. Work continued after 1918, but this time it was in the form of levee construction and the improvement of lateral ditches to better control flood waters.



The Momence Dam on the Kankakee River.

The Army Corps of Engineers conducted additional studies in 1931 and again in 1941. The 1941 study stated that large quantities of sand had been deposited between Momence and the State Line due to erosion. While the sand accumulation was an issue to be addressed, the study also showed that the rate of siltation had decreased, indicating that the channelized river was stabilizing.

In Illinois, a number of investigations along with other proposed projects were recommended between 1947 and 1967. Most of these recommendations centered on channel improvements for recreation or on the reduction of flooding. Various groups objected to the proposals, and none were ever constructed.

In the mid 1970's, Indiana was again focused on addressing problems along the Kankakee River. In 1976 the Indiana Department of Natural Resources created a list of recommendations that were developed into a comprehensive plan for the Indiana side of the basin by the Kankakee River Basin Commission in 1977. The recommendations were:

1. Channel work on 26 miles of the Kankakee River from Ind. Route 223 in St. Joseph County to U.S. Route 30, and 49 miles of wide levees (with no channel work) along the Kankakee River from U.S. Route 30 to U.S. Route 41, for flood prevention and drainage.
2. Channel work on 13 selected tributaries of the Kankakee River in Indiana for flood prevention and drainage.
3. Accelerated land treatment program, which includes installation of conservation measures to reduce erosion and adequately treat 426,400 acres.
4. Accelerated land treatment program, which includes installation of on-farm resource management systems to adequately treat 247,500 acres of cropland for drainage.
5. Change of about 12,650 acres of erosion and drought hazard cropland to non-cropland for reduction of erosion and sedimentation and for adequate treatment of land within its capability (in addition to the land treatment program).
6. Protection of about 5,000 acres of existing classified wetland.
7. Amendment or adoption of flood plain zoning ordinances, building codes and similar regulations for all identified flood-prone areas in the basin, and allowance of eligibility for flood insurance.

Proposed by the Indiana Department of Natural Resources,
1976

These recommendations raised concerns with the residents of Illinois, and in June 1977 Illinois Governor James R. Thompson appointed the Illinois-Kankakee River Basin Task Force.

Throughout the 1980's, the Kankakee River Basin again attracted the attention of government agencies. In 1983 a lawsuit was filed by the State of Illinois against the Army Corps of Engineers and the Kankakee River Basin Commission to stop them from moving forward with their plans to implement the 1977 recommendations. Illinois received a favorable judgment, citing that the environmental damage outweighed any flood protection benefits. That same year, the Kankakee River Basin Commission adopted a new set of guidelines entitled, "The Kankakee River in Indiana – A Program for the Future". The five guidelines outlined in the resolution stated that they must be accepted by all interests in the basin before any action could be prepared.

During this time additional reports were conducted. The Illinois State Water Survey also published a series of reports focusing on the hydrology, hydraulics, flow, and sediment transportation in the river. In 1985 the USDA: Economic Research Service in conjunction with the Soil and Water Conservation Service, U.S. Forest Service; Soil and Water Conservation Districts, Indiana Soil and

Water Conservation Committee, Kankakee River Basin Commission, and Illinois Department of Agriculture submitted a special report for land treatment in the Kankakee River Basin.

In 1989, Indiana created the Kankakee Master Plan – a guide for flood control and land use alternatives in Indiana with an estimated cost of \$101,013,882. Issues along the Kankakee River were visited again in the 1990s. The Kankakee County Board approved a Comprehensive Land Use Plan that included creation of the Kankakee River National Park in 1992, and in 1996 the U.S. Fish and Wildlife Service prepared a preliminary project proposing to evaluate the feasibility of developing a new wildlife refuge in the basin. The draft of the environmental assessment for this project was released in 1998 and it proposed a 30,000 acre refuge.

The U.S. Army Corps of Engineers also received funds during the decade to address problems in the basin. In 1997 they received \$100,000 in federal funds to conduct flood control reconnaissance, and in 1998 they received \$400,000 in federal funds to conduct a feasibility study of the river.

In 2009-2010 groups in Kankakee County came together to form a discussion group known as the Kankakee River Roundtable. This group was spearheaded by the Economic Alliance of Kankakee County and the Community Foundation of the Kankakee River Valley to discuss issues related to the river and to memorialize past activities and information regarding the river basin. The group consisted of representatives from the previously mentioned organizations along with representatives of various river-related groups and the general public. Diverse interests and viewpoints were represented.

An important clarification on this report is to understand the difference between sand and sedimentation terminologies. Sand bed loads are heavier, coarse grains which settle and crawl along the river bottom. In contrast, suspended sedimentation consists of smaller fine grains which are not as likely to settle along the river bottom.

Chronology of Events

Kankakee – Pottowatomi – Ti-yar-ac-ke – “Wonderful Land” or “Slow River Flowing Through a Wide Marsh”

1679	De LaSalle, Tonti, and Father Hennepin canoed down the Kankakee River arriving at the mouth in January, 1680 where it flows into the Illinois River.
1830's	Major floods occurred
1850's	Major floods occurred
1850	Congress passed “An act to enable the State of Arkansas and other states to reclaim the swamp lands within their limits.”
1852	Illinois General Assembly passed “An act to dispose of the swamp and overflowed lands and to pay the expenses of selecting and surveying the same.”
1853	The State of Indiana funded one of the first organized efforts to drain the Beaver Lake – with little effect.
1854	March 1: The title of the swamp lands lying in Kankakee County were vested in that county upon payment of any expenses Iroquois County and Will County had incurred in selecting the same ...authorized the Auditor of the State to patent such lands to Kankakee County. William C. Richards was on April 27, 1854 appointed Drainage Commissioner. Honorable Orson Beebe was appointed Swamp Land Agent.
1860's	Major floods occurred
1860	The Illinois Central Railroad tried to drain portions of the marsh and swamp land – also with minimal effect.
1870's	Ice harvesting – 60,000 tons per year
1871	Kankakee and Iroquois Navigation and Manufacturing Company was formed to build dams and locks for boat traffic.
1878	U.S. Army Corps of Engineers conducted their first study of the river. In 1880, Major Jared A. Smith filed a report to the House of Representatives. Smith made two points worth noting: 1) He stated that the water was so clear that he was able to see fish swimming in the stream as well as minute objects on the bottom to a depth of 5 feet. 2) He also commented that although the “rock ledge” near Momence was considered “a great obstacle to the drainage of the lands in Indiana”, he believed that due to the greater-than-average slope of the river for several miles above the rock ledge, the removal of this ledge “would accomplish little or nothing for the drainage of lands so far above...” (This was the first time the “rock ledge” term is used, and it has lead to serious misconceptions that drove much debate over drainage of the Kankakee Swamp. Many have the impression that the “ledge” is a single obstruction, like a dam. The “rock ledge” is actually a 4 mile reach of the river where the water flows over natural bedrock.

- 1880 "Hunter's Paradise" – Presidents Grover Cleveland and Theodore Roosevelt hunted here, and sportsmen's clubs from New York, Boston, Philadelphia, Washington and Chicago built hunting lodges for their wealthy members. Tens of thousands of waterfowl and other wildlife were harvested by market hunters to be shipped to Chicago or New York.
- 1880's Legislation to create drainage districts was passed, and the invention of the "stream dredge" paved the way for draining the Grand Kankakee Marsh.
- 1882 The Indiana Legislature directed Professor John L. Campbell to survey the Kankakee Valley from its source to Momence to determine an effective method of draining the marsh/swamp land. In his report to the House of Representatives in 1916, Campbell made three suggestions:
- 1) Construct a better main channel for the flow of the river.
 - 2) Straighten and deepen the tributary stream beds that flow into the main channel.
 - 3) Dig a large number of lateral ditches through the marshes and swamps to empty into the improved channels.
- 1886 Singleton Ditch became one of the first to be constructed under the new drainage authority. Ackerman, Hayden and Brown ditches were also built around this time. Still, these actions were only partially successful in draining the marsh and swamps.
- 1890's Major floods occurred
- 1893 The State of Indiana, still convinced that the rock ledge near Momence was the key to their drainage problems, appropriated \$65,000 (between 1889-1891) to widen and deepen the channel near Momence. The work was done in 1893, and 66,447 cubic feet of rock were removed.
- 1906 Encouraged by the work done on "The Momence Rock Ledge", channelization of the upper reaches of the river in Indiana began in earnest. By 1906, 46 miles of the main channel from South Bend to Starke County were straightened. This work was completed by private landowners, the Kankakee Improvement Company and the Kankakee River Reclamation Company. Nevertheless the flooding problem was still not solved. The increased rate of runoff from the straightened reaches caused erosion and flooding downstream. The apparent solution was to continue the straightening of the river and remove more of the rock ledge at Momence (an effort Illinois refused to agree to).
- 1916 The U.S. Army Corps of Engineers reported to the House of Representatives that... "the work done on the upper portion of the Kankakee River failed to accomplish the goals adequately, and it created some new problems downstream...the improved channel increased the rate of runoff so as to cause problems of increased discharge and flooding downstream of the drainage works...". The report concluded that the cooperation of the federal government in planned improvements of the Kankakee River for drainage and flood protection could not be justified in terms of benefits to navigation.
- 1918 Channelization to the Illinois state line was completed. The old 250 miles meandering river channel had been replaced by a straight, deep, short (82 mile long) drainage ditch. This project affected 400,000 acres of swamp and marshland, and 600,000 acres of marginal land at a cost of \$1.2 million.

- 1927 Continued flooding brought renewed attention to the “rock ledge” at Momence. The Yellowhead Drainage District removed boulders there, but this was the only work done on the main channel.
- 1931 U.S. Army Corps of Engineers were asked to assess the benefits of any additional work on the river for improving navigation, flood control, power development, and irrigation. As in the 1916 Corps’ report, this report concluded that the federal government could not justify its involvement in terms of making improvements to benefit the areas reviewed.
- 1934 The Isaack Walton League passed a resolution to restore the Kankakee River.
- 1941 The Corps of Engineers conducted a study to review the improvements that would be necessary to control flooding along the Kankakee River. The improvements considered included:
1) Lowering the rock ledge at Momence
2) Constructing a moveable dam to maintain low flow levels
3) Cleaning the river of sand bars, opening the outlets of sloughs and enlarging and straightening portions of the river from Momence to the state line. The Corps analysis concluded that these proposed improvements should not be completed because the cost far exceeded any possible benefit.
- 1947 The Illinois Department of Transportation, Division of Water Resources, investigated the possibility of replacing the collapsed dam at Aroma Park to restore the recreational channel to Momence. This plan was not acted upon.
- 1967 The Illinois Department of Public Works and Buildings, Division of Waterways, published a report on the Kankakee River Basin that suggested:
1) The rock ledge at Momence be lowered, and
2) A lock and dam be constructed at the confluence of Yellowhead-Singleton ditch.
The report also stated that the channel work could not be economically justified for the sole purpose of improving drainage and flood control. Conservation and environmental groups strongly objected to these proposals, and the project was subsequently dropped.
- 1976 The Indiana DBR and U.S. Soil Conservation Service published a report on the Kankakee River Basin. The report identified problems and needs of the basin, including land use and management for agriculture, flooding, soil erosion, drainage systems, recreational opportunities, protection and maintenance of natural water areas and prime wetlands. The estimated cost to implement - \$214,739,000 (1976 dollars)
- 1977 In response to continued flooding, the Indiana General Assembly created a 24 member Kankakee River Basin Commission (KRBC) to coordinate a comprehensive development plan for the basin. Illinois, in response to public concern over what the Indiana Basin Commission may want to do to the river, formed the Illinois Kankakee River Basin Task Force in June, 1977. The Kankakee task force recommended that the State of Illinois... “maintain the Kankakee River as a low density recreation and scenic river...by keeping it...in the most natural condition possible...”
- 1979 Major floods occur. The Kankakee River Basin Commission initiated a project for channel and levee improvements in and along the Kankakee River in Indiana.

- 1983 The project was stopped after a lawsuit was filed by the State of Illinois against the Army Corps of Engineers and the Kankakee River Basin Commission. Judgment on the Illinois lawsuit required federal permits from the Army Corps of Engineers for improvements on the Kankakee River under section 10 of the River and Harbors Act and section 404 of the Clean Water Act. The KRBC applied for, and was denied, a permit to clear and snag the river. The stated reason was that the environmental damage would outweigh any flood protection benefits.
- 1980's The Illinois State Water Survey published a series of reports on the hydrology, hydraulics, flow and sediment transport in the Kankakee River in Illinois.
- 1983 The KRBC adopted a new set of guidelines entitled, "The Kankakee River in Indiana – A Program for the Future." There are five guidelines stated in the resolution that must be accepted by all interests in the basin before any action can take place.
- 1985 The USDA: Economic Research Service, Soil Conservation Service, U.S. Forest Service; Soil and Water Conservation Districts, Indiana Soil and Water Conservation Committee, Kankakee River Basin Commission, and Illinois Department of Agriculture prepared a special report for land treatment in the Kankakee River Basin.
- 1989 SEG Engineers and Consultants prepared the Kankakee River Master Plan – A guide for flood control and land use alternatives in Indiana. Estimated cost to implement... \$101,013,882.
- 1992 Kankakee County Board approves a Comprehensive Land Use Plan that includes the creation of a proposed Kankakee River National Park.
- 1996 The U.S. Fish and Wildlife Service prepares a Preliminary Project Proposal proposing to evaluate the feasibility of developing a new national wildlife refuge in the Kankakee River Basin in Indiana and Illinois.
- 1997 The U.S. Army Corps of Engineers received \$100,000 of federal funds to conduct a flood control reconnaissance study of the Kankakee River.
- 1998 The U.S. Fish and Wildlife Service released a draft Environmental Assessment on a proposed 30,000 acre site in the Kankakee River Basin.
- 1998 The U.S. Army Corps of Engineers received \$400,000 of federal funds to conduct a Feasibility Study of the Kankakee River.

Kankakee River Basin Stewardship Plan

The process for developing the Stewardship Plan by the Kankakee River Basin Commission is clearly outlined on the first page of this document. The Stewardship Plan as developed by the Kankakee River Basin Commission (KRBC), was formally adopted by the Illinois Department of Natural Resources (C-2000 Program) at a public meeting in 1998. The meeting was held at the Bradley Bourbonnais Sportsman's Club with numerous representatives of the IDNR in attendance. Other attendees included state and federal legislators, local government officials, Army Corps representatives, Illinois State Water Survey representatives, various organizational officers, and the general public. Since the adoption of the Stewardship Plan, nearly 200 government entities, local organizations, businesses, educational institutions, industries, and citizen groups have signed on to the plan indicating their support. These sign-on groups represent thousands of citizens who live within the watershed. The Stewardship Plan serves as a guide in evaluating projects that are considered for improvements within the watershed. This plan has been fully recognized by all authorities who have conducted studies within the watershed since the plan was formally adopted.

Kankakee River Basin Stewardship Plan

Presented by the Kankakee River Basin Partnership

March 1998

About the Kankakee River Basin Partnership

The Kankakee River Basin Partnership is a volunteer group of individuals representing various stakeholders and constituents of the Kankakee River Valley including Will, Iroquois, and Kankakee Counties. The Partnership has assumed leadership responsibilities within the river basin for insuring that cooperation and support are achieved at the local, state, and federal government levels for river basin activities related to restoration, preservation and enhancement of natural resource values.

About the Stewardship Plan

The Kankakee River Basin Stewardship Plan was developed by the Kankakee River Basin Partnership with technical assistance from the Department of Natural Resources. The Plan reflects consensus thought of local people, both private and governmental stakeholders, and the general public concerning the effective management of the land and water resources in regard to the continuing degradation of the Kankakee River Basin from excessive erosion and the deposit of sand and silt, nutrient runoff, habitat destruction and the loss of high quality natural resource values (including prime farmland as a result of urbanization).

The Kankakee River Basin Partnership contracted for the three county Soil and Water Conservation Districts to formulate a "county plan" based on the previously developed EQIP plans developed by each county's NRCS office. The county plans were discussed with the general public at three county meetings held in Joliet (Will), Kankakee (Kankakee), and Gilman (Iroquois). Based on public comments from the county meetings, the three county plans, and the Partnership Plan, a "basin-wide" plan, was prepared. The Partnership has made final revisions to the "basin-wide" plan to reflect the consensus of the stakeholders and the public at-large.

Introduction

The Kankakee River rises out of a marsh in Indiana three miles southwest of South Bend. Originally, the Kankakee River wandered through some 2,000 bends over a course some 240 miles in length with numerous meanders, oxbows, and sloughs. The Kankakee marsh was one of the largest marsh-swamp basins in the United States. The Kankakee marsh was more than 10 miles wide, and it covered some 500,000 acres, most of which was in Indiana.

Channelization in Indiana in the early 1900s shrank the Kankakee's original 240 mile course into a fast and straight channel approximately 90 miles in length supported by levees. The outcropping of bedrock near the city of Momence was lowered by 2 and 1/2 feet. These major changes drained a great portion of the Grand Marsh. With the drainage changes, agriculture claimed the marsh for production of row crops. The environmental consequences resulting from the massive hydrological changes still plague the river basin today.

In Illinois, the Kankakee and Iroquois Rivers flow as naturally meandering streams. Tributaries to these rivers have been channeled to permit drainage and to facilitate conversion of wetlands, woodlands and prairies to agricultural uses. Three man-made run-of-the-river dams are present in the river system, at Momence, Kankakee and Wilmington. Prominent bedrock outcrops are also present at Momence (Kankakee River) and at Sugar Island near Chebanse (Iroquois River) backing up water in the rivers for miles. The Kankakee River in Illinois drains approximately 2,169 square miles flowing about 62 miles from the State Line to the Des Plaines River where the two rivers form the Illinois River. The Iroquois River is the largest tributary, and it joins the Kankakee near Aroma Park.

Overall, the Kankakee River Basin remains as one of Illinois' finest stream systems with good water quality and high quality natural resource values. Even as one of Illinois' most treasured resources, the river basin is not without problems. Sand and silt deposition and nutrients are degrading the quality of the river basin natural resources. Unusual extremes in high and low flow water levels in the river during biologically critical times of the year also cause adverse environmental damages and reductions in usable aquatic habitat. The impact to the aquatic ecosystem is apparent with the reduction in sport fishing success experienced by anglers over the last 20 years. Poor reproduction and recruitment of sport fish into the angler's catch are directly related to the sand and silt deposition over critical habitats in the main stem and backwater areas of the river.

Vision for the Kankakee River Basin

The Partnership wants to insure that the high quality natural resource values of the Kankakee River Basin are restored, protected, and enhanced, where possible, by private land owners as well as by local, state and federal government agencies in a manner that respects the interests of the various stakeholders while providing a better quality of life for all basin inhabitants. The Partnership wants to preserve a high quality, naturally diverse and productive Kankakee River System sustained by ecological processes which encourage the preservation of aquatic and terrestrial habitat that are managed to allow for compatible social and economic issues.

Problems and Goals for the Kankakee River Basin

Problem I. Increased water velocities from uncontrolled runoff and stream modifications have caused unnatural water level fluctuations and excessive woody debris that block natural channels, this has resulted in unusually high peak discharges, low minimum flows, flow obstructions, ice jams, flooding, and severe sand/silt deposition in tributary and main stem areas of the river basin.

Goal I. **Stabilize the water resources.**

Objective I. Reduce peak flow by at least 10%, and increase low flows by 10%. Protect critical low flows. Remove sand and sediment deposited in targeted riverine areas. Remove targeted flow obstructions including ice jams. Restore hydrologic function to targeted sub-basins. Participate in the Ecosystem Restoration Study by the Army Corps.

Action Items:

1. Identify the causes of unnatural and natural water level fluctuations and disseminate information on critical minimal flows and on their importance to the health of the entire ecosystem.
2. Establish water management programs throughout the watershed for sediment management, water banking, water usage, and flood crest reduction.
3. Identify critical areas of sand deposition which have degraded valuable riverine habitat.
4. Reduce the excessive sand bed and sediment loads in the river by reducing sand inputs into Illinois waters and selective dredging of bed load in critical areas.
5. Selectively remove critical stream flow obstructions which are documented to be causing erosion flooding problems in collaboration with state and federal regulatory agencies.
6. Develop guidelines for improved drainage ditch maintenance practices in support of proven conservation methodology for distribution to Drainage Districts.
7. Restore floodplain function in areas where hydrologic changes have caused problems and damaged natural resources.
8. Compile flood-prone area maps identifying critical areas to avoid development.
9. Encourage local government to adopt and enforce comprehensive stormwater management ordinances tailored to address local needs and to be consistent with state-provided model ordinances.
10. Restore or construct wetlands and other water retention capacity in urban and rural areas in the Kankakee River Basin, in collaboration with appropriate public landowners and volunteering private landowners.
11. Support and provide input into the U.S. Army Corps of Engineers Study for Flood Damage Reduction Ecosystem Restoration of the Kankakee River Basin.

IMPLEMENTATION STRATEGY: The primary agencies responsible for these objectives are the Partnership, counties, River Conservancy, US Army Corps of Engineers, DNR, SWCD's, Farm Bureau, Co-op Extension Service, NRCS and the DOA utilizing the funds available in their respective operating budgets and the C2000 Ecosystem Program (DNR).

Problem II. Certain land management practices have caused soil erosion which resulted in severe sand/silt deposition in the tributary and main stem areas of the river basin.

Goal II. **Stabilize the land resources.**

Objective II. Reduce erosion to T on 97% of cropland acres.
Reduce stream bank erosion on targeted areas.
Increase land treated with conservation practices by at least 20%.
Restore riparian vegetation along tributaries and rivers.

Action Items:

1. Develop new cost-share programs and technical assistance for a landowner/operator to establish soil conservation practices on cropland and non-cropland areas.
2. Promote and implement cost-effective efforts for reducing soil erosion from forests, bluffs, woodlands, gullies, pastures, urban developments, construction sites and stream banks.
3. Expand and revise existing cost-share programs for more flexibility and provide technical assistance to landowners/operators in establishing soil conservation and water quality practices on cropland and non-cropland areas:
 - Provide for greater flexibility for construction seasons and particularly multi-year programs.
 - Develop program support for any gaps identified in eligible practices and cost-share availability for non-cropland areas such as bluffs, stream banks and wetlands.
 - Increase technical assistance to landowners by hiring additional soil and water conservation district staff.
4. Identify critical areas and implement cost-effective Best Management Practices for reducing soil erosion from croplands, forests, bluffs, woodlands, gullies, pastures, developments, construction sites, and stream banks;
 - Recommend that the U.S. Department of Agriculture give higher priority to Conservation Reserve Program contracts for reforestation of the most erosion prone lands.
 - Provide funding for permanent livestock fencing materials on stream corridors and waterways for volunteering landowners.
 - Provide funding to cost-share interior permanent livestock fencing in forested areas for volunteer landowners.
 - Encourage local government to adopt Best Management Practices.
5. Expand voluntary farmer involvement with state and federal research teams in identification of problems and use of on-farm research trials for making no-till corn more viable. Quantifying how Best Management Practices affect surface water quality, and develop solutions for non-cropland soil erosion:
 - Organize local committees of agricultural agencies and organizations to establish a procedure for obtaining farmer/producer involvement in identifying problems for research.

- Disseminate research findings through local farmer groups, public meetings, on-farm tours, and posting on the Internet.
6. Seek legislation to improve tax incentives for activities such as establishing and maintaining of riparian filter strips along tributary streams, wetlands, and for voluntary establishment of permanent vegetative cover on cropland and riparian corridors, and support comprehensive farm conservation planning and implementation:
- Assemble a task force addressing concerns such as obtaining local and state tax revenue and having the agriculture industry evaluate incentives and potential reimbursements to units of local government.
7. Promote awareness of conservation technology programs to producers:
- Provide more one-on-one technical assistance in nitrogen management, chemical use, crop residue measurement, and conservation tillage.
 - Encourage whole-farm planning
 - Expand use of field demonstrations, tours, and hands-on workshops to introduce new technologies.

IMPLEMENTATION STRATEGY: The primary agencies responsible for these objectives are the Partnership, DNR, SWCDs, Farm Bureau, River Conservancy, Co-op Extension Service, NRCS, and the DOA utilizing the funds available in their respective operating budgets and the C2000 Ecosystem Program (DNR).

Problem III. Certain urban and rural land management practices have caused unacceptable levels of point and non-point source pollution in tributary and mainstem areas of the river basin.

Goal III. Improve water quality.

Objective III. Reduce levels of point and non-point source pollutants in the river.

Action Items:

1. Encourage public and private land users to utilize “Best Management Practices” when managing their urban and suburban properties for production, construction, or other uses which cause disturbances.
2. Develop programs to collect snow and hazardous materials and to dispose them properly in a manner consistent with EPA regulations.
3. Discourage state and federal agencies from issuing “Temporary” permits that avoid meeting water quality standards.
4. Support the River Watch and other groups’ environmental programs that monitor the river.

5. Encourage practices that promote the use of biodegradable products.
6. Educate boaters on proper pump out procedures for bilges and waste containments at marine facilities.
7. Advocate secure fueling facilities at all marine facilities.
8. Educate boaters on proper fueling methods and precautions.
9. Confine boat cleaning and repair to designated areas with impermeable ponds and /or containment areas.

IMPLEMENTATION STRATEGY: The primary agencies responsible for these objectives are the Partnership, DNR, SWCDs, Farm Bureau, River Conservancy, Co-op Extension Service, USEPA, IEPA, NRCS, and the DOA utilizing the funds available in their respective operating budgets, grants, and the C2000 Ecosystem Program (DNR).

Problem IV. Kankakee River Basin presently contains some of the most significant, high quality, natural resources in the State of Illinois. Certain urban and rural land and water management practices have caused these valuable habitats to be threatened.

Goal IV. Preserve the high quality natural resource values present in the river.

Objective IV. Acquire land interests in high quality areas.

Action Items:

1. Identify high quality natural resources within the river basin.
2. Establish public/private partnerships, voluntary incentive programs, and management agreements for lands with high quality natural resource values.
3. Purchase conservation easements or property rights from willing sellers. Holding of land titles and easements shall be with local, legal entities or DNR via transfers from legal entity.
4. Identify and implement control measures for exotic and nuisance species.

IMPLEMENTATION STRATEGY: The primary agencies responsible for these objectives are the Partnership, DNR, SWCDs, counties, cities, Farm Bureau, River Conservancy, Co-op Extension Service, NRCS, and the DOA utilizing the funds available in their respective operating budgets and the C2000 Ecosystem Program (DNR).

Problem V. Conversion of natural land, land management practices, stream alterations, and point and non-point source pollution have caused degradation of natural habitats and deficits of recreational opportunities in the river basin.

Goal V. **Restore or enhance native animals and degraded habitats.**

Objective V. Acquire lands or land easements with restorable natural resource values. Complete restoration and enhancement projects. Restore plant and animal populations where necessary. Increase the recreational areas and river access.

Action Items:

1. Identify critical impacted habitats such as forests, streams, wetlands, and prairies which have been degraded. Initiate sub-basins for focused efforts to include, but not limited to: Trim Creek, Beaver Creek, Sugar Creek, Langan Creek, Forked Creek, and the Momence Wetlands.
2. Develop regional (sub-basin) programs to protect, restore, and enhance critical animal habitats and populations where compatible with critical habitat management programs. Provide for public recreational use and river access through public/private partnerships, voluntary incentive programs, management agreements, technical assistance, conservation easements and land purchases.
3. Implement regional (sub-basin) programs to protect, restore, and enhance critical habitats and animal populations. Where compatible with critical habitat management programs, provide for public recreation use and river access through public/private partnerships, voluntary incentive programs, management agreements, technical assistance, conservation easements and land purchases (willing sellers). Holding of land titles and easements shall be with local legal entities or DNR via transfer from local legal entity.
4. Develop and implement science-based seedling and stocking programs that consider genetic strains and natural populations.

IMPLEMENTATION STRATEGY: The primary agencies responsible for these objectives are the Partnership, DNR, SWCDs, counties, cities, Farm Bureau, River Conservancy, Co-op Extension Service, NRCS, and the DOA utilizing the funds available in their respective operating budgets and the C2000 Ecosystem Program (DNR).

Problem VI. Local schools and the general public have little information regarding the Kankakee River Basin and the need to preserve, restore, and enhance the natural resource values.

Goal VI. **Improve educational efforts/materials for preserving natural resources.**

Objective VI. Increase the amount of local educational information and materials. Develop and conduct an outreach program for resource conservation. Increase the awareness of local governments regarding natural resources impacted by urbanization.

Action Items:

1. Develop and deliver more conservation education programs to schools and create a database of existing material.
2. Increase public awareness of the history on the conditions in the Kankakee River, the past beneficial efforts, and the need to implement the recommendations of this plan throughout the Kankakee River watershed.
3. Develop outdoor classrooms.
4. Enhance local awareness and local capabilities to address watershed/water resource concerns through education and technical assistance and by providing funding for volunteer watershed management planning. Planning funds would be a one-time allocation, likely expended over one or more years.
5. Encourage the Illinois State Board of Education to fund the mandate for conservation education.
6. Support volunteer educational programs such as the NIAA R.E.S.P.E.C.T. Program.

IMPLEMENTATION STRATEGY: The primary agencies responsible for these objectives are the Partnership, DNR, SWCDs, NRCS, counties, cities, Farm Bureau, River Conservancy, Co-op Extension Service, NRCS, and the DOA utilizing the funds available in their respective operating budgets and the C2000 Ecosystem Program (DNR).

Problem VII. Prime farmland is being converted to other land uses causing a loss in county agricultural production.

Goal VII. Protect prime farmland.

Objective VII. Increase agricultural financial incentives. Identify prime farmland areas. Purchase land or easements for preservation of prime farmland. Develop programs for reduced agricultural taxes. Complete county zoning ordinances.

Action Items:

1. Identify areas of prime farmland within the river basin.
2. Preserve areas of prime farmland through public/private partnerships, voluntary incentive programs, management agreements, and purchase of conservation easements and land acquisition (willing sellers).
3. Encourage development of a comprehensive program for the protection of prime farmland through county zoning ordinances and tax incentives.
4. Increase awareness and sensitivity of local government officials regarding prime farmland and natural resources being impacted by urbanization.

IMPLEMENTATION STRATEGY: The primary agencies responsible for these objectives are the SWCDs, counties, municipalities, townships, Farm Bureau, River Conservancy, Co-op Extension Service, NRCS, and the DOA utilizing the funds available in their respective operating budgets and the C2000 Ecosystem Program (DNR).

PRIOR STUDIES, DOCUMENTS & ARTICLES – EXCERPTS AND SUMMARIES

(See Accompanying Disk for Full document)

The following information contains excerpts taken from various studies, reports, articles, bulletins, and white papers that addressed sand bed load, sedimentation or other environmental concerns on the Kankakee and Iroquois Rivers. Note that sand and sedimentation studies of the Kankakee River commenced shortly after channelization and continue through today.

Dr. W.D. Pence, Purdue University (study)⁵ - updated

Dr. Pence noted that drainage activity (during the draining of the Kankakee Grand Marsh) of landowners in placing and constructing drains wherever there was opportunity to drain lands was developing serious complications, and there was no unity of opinion regarding a plan. Pence made the State of Indiana aware of serious problems downstream as a result of the drainage efforts. This prompted the Indiana state legislature to ask the State of Illinois to blow the rock ledge at Momence.

US Army Corps 1931 & 1941 (study)⁶

The Army Corps of Engineers studies in 1931 and 1941 were attempts to measure the sand build up downstream from the Grand Marsh drainage project. They noted large deposits of sand had been collected in the Momence area due to channel erosion upstream in Indiana. They repeated this study in 1941 and found that the sand deposits had greatly increased and covered a further reach downstream.

US Army Corps 1939 Fly Over (study)⁷

The 1939 fly over indicated large deposits of sand on the down river portions of permanent islands. They further noted the formation of new islands caused by the sand deposits. The repeat fly over of 1954 noted that there was a definite increase in the sand and island formation in relation to the 1939 study. There also were noticeable increases in the widths of beaches and spits on the riverbanks.

New York Zoological Society Bulletin – “New Life for the Old Kankakee.” 1934.

A noted author wrote the following in describing the drainage of the Kankakee Grand Marsh. “The intelligent American farmer now realizes that nature intended for certain lands to be farmed, other lands to be grazed, other lands to be left as woodlots, and some areas to be left as marsh and river bottoms. By the use of dredges, dams, levees, and much labor it’s possible to alter nature’s will, at least temporarily. But natural forces are strong, and when man steps in for a battle against nature, he has to be well fortified to defend his changes, otherwise he will be beaten. Nature will

⁵ Study from 1904 Office of Experiment Stations Report, now out of print. This notation is available in the ISWS study of 1980 and USDA report of Drainage of agricultural lands in the Kankakee River Valley, Indiana – page 5

⁶ Study out of print; notations can be found in the ISWS study of 1980

⁷ Ibid.

win back what was taken from her, and if the land is not returned to its original status, nature's revenge will come in the form of a ruined land and pauperized citizenry.

Illinois Kankakee River Governor's Task Force (Gov. James Thompson) 1977.

The Kankakee River Task Force's concluding statement is as follows:

"The State of Illinois should maintain the Kankakee River as a low density recreation and scenic river by keeping it in the most natural condition possible." They further stated that the Indiana Plan to manage the basin for agriculture was in direct conflict with this policy recommendation. Also in the report the Task Force made recommendations in 10 areas of interest with the most important being – interest in sediment and sedimentation in the Kankakee River Basin, water quality, flooding and flood control, natural areas and outdoor recreation. The first topic, sediment and sedimentation, was of major concern to the citizens of the Kankakee River Basin. There was special concern about the present and future impact of the sediment in the Kankakee River and about the effect of proposed work in Indiana on this problem.

Dr. Alfred H. Meyers statement in ISWS Study of 1980⁸

Marsh prairies of aquatic sedges and grasses, grazing areas, wild rice sloughs, scenes of countless wild geese and ducks, flag ponds lined with muskrat homes, a narrow but almost uninterrupted swamp forest full of game rimming a meandering river teeming with fish, wet prairies made humanly habitable by the interspersed sandy island oak barrens, many of them surrounding the highest flood waters – such was the general physical set up of the "natural" Kankakee.

US Army Corps report to US House of Representatives in 1916⁹

The report stated that the work done on the upper portion of the Kankakee River failed to accomplish its goals adequately and that it created some new problems downstream of the work. The Corps suggested that the design and implementation lacked a comprehensive plan and the cooperation of the interested parties, the resultant successful drainage of about one third of the acreage did not necessarily justify the amount spent, and the improved channel increased the rate of runoff so as to cause problems of increased discharge and flooding downstream of the drainage works.

<Statement in ISWS 1980 study on page 22>

Earl H. Reed , *Tales of a Vanishing River*, 1920.

Fields of corn and wheat stretch over the reclaimed acres for the utilitarian has triumphed over beauty and nature's providence for his wild creatures. The destruction of one of the most valuable bird refuges on the continent has almost been completed for the sake of immediate wealth. The realization of this great economic wrong must be left to future generations.

US Army Corps report to the US House of Representatives, 1931¹⁰.

The Corps pointed out that the previous channelization in Indiana had increased the flow so that sand and silt were being carried downstream into Illinois, depositing among trees, and creating numerous sand bars in the river bend. The straightened channel in Indiana had little effect below Momence because of the increased slope downstream.

⁸ ISWS 1980 Study, pg. 19

⁹ Ibid. pg. 22

¹⁰ Ibid. pgs. 24 - 25

ISWS (study) Hydraulics of Flow and Sediment Transport in the Kankakee River in Illinois, 1980

"Numbers of active sand bars on the Kankakee River were surveyed. One bar at the State Line was monitored (1979), and it moved about 18-24 inches a day. This bar was about 150 to 200 feet wide, approximately 1600 feet long and about 3 to 4 feet high at the leading edge. Its total volume was estimated to be about 12,000 to 18,000 tons, which is 9 to 14 percent of the total sediment load at this location. A generalized analysis of changing flow regimes in the river has shown that increasing gradient of a river having uniform bed materials and slightly increasing average flows results in an increase in the sediment load in the river. Three remedial measures have been identified by the study: 1. Construction of detention reservoirs, sedimentation ponds or settling basins; 2. Development of side channel flood retention basins; 3. Removal of deposited sediment by dredging."

Ivens, Bhowmik, Brigham, Gross, *The Kankakee River Yesterday and Today*, 1981¹¹.

"If sedimentation from Indiana has adversely affected the Illinois portion of the Kankakee River, the evidence could include: island formation or sedimentary buildup on the down river portion of islands and an increase in the widths of beaches and spits on the banks of the river. Between 1939 and 1954, the air photos revealed increasing sedimentation in the Kankakee River resulting in growth of beaches and islands particularly at the confluence of the Kankakee and Iroquois Rivers. Downriver of this confluence there was no photo evidence of sedimentation (note: this was in 1981). The sediment load carried by a stream is a function of a number of variables. The major ones are: The characteristics of the watershed, such as soils, forest cover and agricultural practices; the meteorological conditions, such as rainfall and runoff characteristics, and snow and ice melt; physical features, determined by land use and urbanization practices, the nature of bed and bank materials, soil cover, bank cover, and characteristics of the tributaries or drainage ditches; and man-made constraints, such as river straightening and channelization, repair or maintenance of stream banks and levees, and construction of dams.

During low flows in the winter and late summer, the suspended sediment load consisted of silt and clay, but during high flows, the composition of the suspended load changed drastically, and sandy materials made up 50 to 80 percent of the suspended load. Although the Iroquois River carries more suspended sediment load than the main stem of the Kankakee, most of the suspended load from both rivers is transported all the way to the Illinois River. In contrast, the bed load in the Kankakee River requires a much longer time for most of it to be transported to the Illinois River.

Hydrologists have found that a river will remain in balance as long as the product of the discharge and slope (A&B) is proportional to the product of the sediment load and the median size of the bed material (C&D). However, if for any reason any one of the four variables is changed, there must be a compensatory change in one or both of the variables on the other side, as the river seeks its balance once again. (note: the discharge and slope of the Kankakee River in Indiana was changed)

Analyses of the data indicated that if the areas of coarse substrates were converted to chiefly sand areas, the number of fish species would reduce by about 30 percent, the number of individuals by about 70 percent and the biomass by about 85 percent. Since mussels occur at various densities throughout the upstream portion of the Kankakee River in Illinois, sedimentation of the present non-sand areas would destroy some part of the mussel fauna. The invertebrates numbers would be reduced approximately 36 percent if moderate increases in the transport of sand sediment occur, and if increased sand were to move downstream, approximately 65 percent

¹¹ Pgs. 10, 14, 15, 18, 19, 20, 21, and 23.

of the population would be destroyed. The channelization of the upper stem of the river in Indiana did change the river regime and did result in more sedimentation in the downstream reaches in Illinois. It did not solve all the problems of drainage and flooding.”

Illinois Department of Energy and Natural Resources, *The Effects of Sedimentation on Aquatic Life of the Kankakee River*, 1981¹².

“In the Kankakee River, the conversion of areas where coarse substrates predominate to areas chiefly composed of sand will reduce the number of fish species present by about 30 percent, reduce the number of individuals by approximately 70 percent and reduce biomass by about 85 percent. Damage by sedimentation to endangered, threatened, or rare species of aquatic life would depend upon the degree and location of the sedimentation. The presence of non-sand areas would destroy some part of the mussel fauna. In conversion of areas where coarse substrates predominate to areas chiefly composed of sand will reduce the number of invertebrate taxa. The number of taxa will be reduced by approximately 36 percent, and more increased covering would destroy up to 65 percent.”

Illinois State Geological Survey, *Geology of the Kankakee River System in Kankakee County, Illinois*, 1981¹³.

“Most of the landscape adjacent to the main stem of the Kankakee River in Indiana is sand. The geology of the Illinois portion of the basin is more complex; in Kankakee County, Illinois, it includes silt and clay glacial tills, silt and clay lacustrine sediment, exposed bedrock, and sand. From the Illinois – Indiana State Line downstream to near the city of Momence, the river channel is underlain by thick deposits of sand overlying bedrock. In the several miles of river channel adjacent to Momence and a 2 mile reach upstream of Aroma Park, the Kankakee River is flowing over bedrock. In the area between the cities of Momence and Aroma Park, the channel contains a series of massive sand bars, up to 1 or 2 meters thick, overlying bedrock. The upper (eastern) end of the Six Mile Pool contains thick sand deposits. In the lower end (western) of Six Mile Pool, near the city of Kankakee, the main channel is underlain by bedrock although the insides of the meanders have sand bars.

It has been the contention that the dredging of the Indiana portion of the river has caused sand choking and increased sedimentation up river of the bedrock areas, particularly in the Momence Wetlands and in the recreational pool near the city of Kankakee. If sedimentation from Indiana has adversely affected the Illinois portion of the Kankakee River, there should be evidence of island formation or sedimentary accretion on the downriver portion of islands and an increase in the widths of beaches and spits on the banks of the river over the period following the dredging activities. This data should be observable on the time sequential aerial photos as well as on topographic maps of the Kankakee River in Illinois. Air photos evidenced increasing sedimentation in the Kankakee River in 1939 and 1954. (The evidence was outlined in this study.) In their summary, they noted: The formation and migration of sand dunes continued after the glacier melting took place and continues today in a few local areas. The Kankakee River carries great quantities of sand westward. The channelization increased the quantities being transported.”

¹² Pgs. 14 – 15.

¹³ Pgs. 64 – 66, 72 – 73.

ISWS , *Sediment Transport and Hydraulics of Flow in the Kankakee River, Illinois – Phase II*¹⁴, 1981

While traveling the Kankakee River by boat, investigators observed that there were a number of sand deposits or sand bars in the river in Illinois, some of which extended from a few hundred feet to about one mile long.

ISWS, *Channelization of the Kankakee River Has Led to Problems Downstream*, Nov-Dec 1990.

“The problems that have arisen show what can happen when the natural state of a river and its watershed is altered without attention to what may develop downstream. The changes in the river channel sped the flow of water and sediment from Indiana into the Illinois portion of the river, leading to extensive sediment deposition in some areas. The Illinois Water Survey researchers found that the main problem in the Kankakee River is the presence of excessive amounts of sand. The main river bed and bank consist of mostly sand, which is scoured and carried into downstream reaches. Bhowmik noted that people who lived along the river in Illinois for many years have seen sand fill and nearly choke portions of the river restricting boating and fishing. The sediment load of the Kankakee River can't be eliminated, but excessive amounts of sediment can be stopped from entering the river.”

IDNR Outdoor Highlights, *Trouble in Paradise*, February 1991¹⁵.

“Despite its numerous positive features, the scenic northeastern Illinois waterway is threatened by severe sedimentation that jeopardizes its high standing. All is not rosy with the popular waterway. One of the darker shadows hanging over it is the sand that has entered the river in huge volume over the years and which continues to do so. Some of the sand comes from Illinois, but most of it is from the channelized portion of the river in Indiana. Channelization has caused increased flood frequency, erratic flow, erosion and changes to flow velocity on the Illinois side according to biologist Sallee. What the sand avalanche has meant to the Kankakee River Basin area is economic hurt as well as ecological damage. In short, the sedimentation has constituted a body blow to a regional economy having significant dependence upon outdoor recreational pursuits. As the river has become shallower, its water holding capacity and flooding reduction capabilities have declined. Because of the configuration of the channelized portion of the river in Indiana, its waters move faster and they pick up and carry several times more sediment, almost all sand in this case, than a meandering stream would. The water literally rushes at Illinois in a torrent.”

USGS, *Sedimentation of the Kankakee*, 1991¹⁶.

When the main stem of the Kankakee River in Indiana was reduced from about 250 to about 80 miles, the slope of the channel was necessarily increased more than three times. Consequently, the channel was geomorphologically out of balance. Since then, fluvial processes have acted to adjust the channel bottom to a slope more closely matching the original slope. Erosion of the channel bottom started from a controlled elevation in the lower reaches and has since been working upstream. This natural process has been complicated by dredging operations that have continued in Indiana. Dredging has been conducted in areas of sediment accumulation. Many parts of the channel in Indiana are lined by levees for berms that decrease sediment movement from the flood plain to the channel and from the channel to the flood plain. That sediment still accumulates in the river, and dredging still occurs strongly suggest that sediments from agricultural sources are still reaching the river.

¹⁴ Pg. 5.

¹⁵ Pg. 12 – 15.

¹⁶ Pg. 5.

Jack Klasey, Sandbars, 1994¹⁷

“Based upon the various studies conducted during the past twenty years and the evidence of those who have observed the river for many years, it seems undeniable that sedimentation is still occurring in the section of the Kankakee River between the Illinois and Indiana state line and the Kankakee Dam. Most of that sediment is sand, which is replacing coarser materials and apparently altering habitats in some areas. This effect could potentially cause reduction of both species diversity and population.

A major effect of channelization was to change the stream gradient in Indiana from an average slope of 0.45 feet per mile to 0.83 feet per mile, increasing stream velocity and the amount of sediment carried. The channelizing of the river, by eliminating the wetlands that would otherwise store and slowly release large water flows, also had the effect of increasing flooding of the reclaimed farmland.

From the completion of channelization until the mid 1970s, concern grew in both Indiana and Illinois about the effects that increased sedimentation was having in a number of areas. These effects included the continued problem of flooding in both Indiana and the area between the state line and Momence, and the development of extensive sandbars in areas between Momence and the Kankakee Dam.”

USGS, Dendrogeomorphic Study, 1995¹⁸.

“Dendrogeomorphic evidence indicated a greater net sedimentation rate for trees established after 1950 compared to trees established before 1950. Possible explanations for apparent increased rates since 1950 include erosion, soil compaction and increased stream flow. A major erosion event may have resulted from a major flood in 1950.”

USGS, Cross Section Geometry Study, 1997¹⁹.

“In the Momence Wetlands, reach and overall aggradations of approximately 133,600 yards (167,700 tons) of sediment occurred from 1980 to 1994. Net aggradations of sediment in the Six Mile Pool from 1980 to 1994 were approximately 182,900 yards (229,600 tons) of sediment accumulated in the reach during this period. From 1978 to 1980 a net aggradations of sediment was determined for the Six Mile Pool reach. Aggradations of approximately 115,700 yards (145,300 tons) of sediment occurred in the reach during these 2 years.”

USGS, Suspended Sediment Budget for the Kankakee River Basin, 1993-95²⁰.

“During a three year period measuring suspended sediment in the Kankakee River and Iroquois River, it was noted that the Iroquois River contributes about twice as much suspended sediment to the system.” (Note: sand bed load moves along the bed and is not measured as suspended sediment)

US Army Corps (Chicago) Feasibility Study, 1999²¹.

“The frequent flooding in the Kankakee River Basin is the result of several factors including loss of river capacity due to channelization, increased runoff to the river and its major tributaries due to

¹⁷ Pg. 1 – 7.

¹⁸ Pg. 28.

¹⁹ Pg. 40.

²⁰ Pg. 8.

²¹ Pg. 3 – 5.

agricultural drainage and urban/rural development, loss of wetlands to retain and slowly release flood waters, erosion of topsoil due to inadequate land treatment practices, and bank erosion along the river and its tributaries as a result of increased peak floods. The river and its tributaries have reduced the capacity to retain these waters within the river banks. Consequently the frequency and duration of the overbank flooding has been increasing and will continue to increase if corrective measures are not put into place.

This flooding and sediment build up is not only causing damage to local property, it is degrading the natural resources and restricting recreational uses of the Kankakee River and its tributaries. Because of the higher sediment loads carried by floodwaters, the water quality of the river is degraded making it less suitable for many sensitive floral and faunal species, thereby reducing species and habitat diversity. Draining of the lands within the basin for agricultural, commercial and residential use since the turn of the century created serious and persistent flooding problems within the basin. Additionally, because of the increased runoff and loss of vegetation on lands adjacent to the Kankakee River and its tributaries, sedimentation within the river has increased. This increased sedimentation has exacerbated the flooding problems and reduced the quality of the river and its flora and fauna. Ongoing studies have shown a steady decline in species and habitat diversity within the basin.”

US Army Corps (Rock Island) Section 206 State Line Project, 1999²².

“During channelization, the river main channel length was reduced from about 270 miles to about 90 miles, increasing the river slope from 0.45 feet per mile to 0.90 feet per mile (Terrio and Nazimek, 1977). Most of the pre-settlement backwater and wetland areas that were connected to the main channel of the Kankakee River were superficially disconnected and or converted to agriculture or urban areas. These changes have increased surface water runoff, reduced groundwater recharge, decreased the time of concentration associated with runoff and decreased the travel time along the tributaries and the main channel of the Kankakee River. Human actions have had impacts on the Kankakee River system, changing hydrologic and hydraulic conditions that have in turn changed the way that sediment moves through the system. Along most of the Kankakee River, the negative sediment related effects tend to involve excessive aggradations which fills in deep water habitat, covers fish habitat, and degrades the overall quality of the river. The cumulative effects of the changes along the Kankakee River have reduced the backwater and wetland areas connected to the river by inducing an aggrading sedimentation regime along the main channel of the Kankakee River within the Momence Wetlands.

The river reach from Singleton Ditch to the State Line is trapping sediments of 0.51 percent per year and has lost 10.2 percent of its volume from 1980 to 2001. The Six Mile Pool has been trapping sediments at a higher rate of 0.67 percent per year and has lost 13.4 percent of its volume from 1980 to 2001.

The sandbar that was measured at the State Line in 1980 has grown by 12 percent since 1999. Sediment is a major water quality issue in the Kankakee River. However, unlike most of the rest of the Illinois River Basin, the sediment carried by the Kankakee River occurs as sand and relatively little silt is transported on an annual basis.”

(Note: the Six Mile Pool has lost over a third of its storage capacity and at this rate will have lost over 2/3 in the next 50-60 years).

²² Sections 2.7 & 2.8.

IDNR Fact Sheet, Kankakee Mainstem Illinois River Ecosystem Restoration, 2001²³.

Sedimentation of sand is a problem in the Kankakee River in Illinois. Clean rock and gravel substrates provide habitat for many species of aquatic insects and other invertebrates and important spawning habitat for many fish species. Sand deposition makes these habitats unavailable. Sediment can also negatively affect aquatic plants. As plants are eliminated, populations of insects and fishes are reduced or eliminated because they have less and poorer quality habitat. The Kankakee River carries substantial amounts of sand, particularly during high stream discharges. Past studies disagreed on whether sedimentation rates would continue to increase or if the river had reached equilibrium (1980 & 1981). Recent studies concluded that there has been ongoing sedimentation (1997). It is expected that sedimentation in the Kankakee River in Illinois will continue. While studies and projects underway will begin to address sedimentation entering the Illinois reach of the Kankakee River, additional efforts are needed. Sedimentation of key aquatic habitats is expected to continue. Side channel and pool areas are expected to continue to lose depth due to sediment deposition. The interstitial spaces of cobble and gravel substrates may become clogged with sediment. Overall, the high quality habitat of the Kankakee River is expected to decline due to sediment deposition. Sedimentation of important aquatic habitats is a major problem in the Kankakee River Mainstream. The high mussel diversity and high biological stream classification rating indicate the high quality of available aquatic habitat. Sand deposition threatens the quality of many of the high quality pool, riffle and side channel habitats.

Meg Jonas, Research Hydraulic Engineer, DOTS Request for Chicago District of the Army Corps Kankakee River Feasibility Study, 2004²⁴.

"Bed and bank materials. Bed material samples were taken at approximately every mile, and bank samples were taken on alternating sides of the channel at approximately every fifth site. A total of 82 mid channel samples and 19 bank samples were collected. Both bed and bank materials are sand in size. (Quoting ISWS Study) Since bed material is carried both as bed load and suspended sediment load, it would be helpful to use the terms bed material load and wash load which together form the total sediment load. The bed load is hydraulically controlled (limited by the hydraulics of the flow) while the wash load is limited only by availability. The channelization (in Indiana) increased the slope, leading to increased sediment transport capacity in the Indiana portion of the Kankakee. When this increased sediment load reaches the unaltered Illinois portion, one would expect deposition to occur. In high flow, the river carries 20 percent silt and clay and 80 percent very fine sand through medium sand."

ISWS, Bank Erosion Survey Study, 2001²⁵.

"A total of 223.6 river bank miles were evaluated on a stretch of river extending 111.8 miles. Out of this total, 103 river bank miles are located in Indiana, and 120.6 river bank miles are located in Illinois. About 94.6 percent of the total showed severe bank erosion. Relatively more severe bank erosion was noticed in Indiana than in Illinois. About 39.4 river bank miles showed moderate bank erosion in Indiana and Illinois. About 70 percent of this moderate bank erosion occurred in Indiana. In terms of individual states, about 80 percent of the Indiana river bank miles exhibited some type of erosion, and 20 percent of the river bank miles were either stable, protected by structural means, or in locations where data could not be collected. As explained previously, there were reaches of the river in which banks were either obscured by snags or behind islands that were inaccessible from the boat. The Kankakee River in Indiana exhibited relatively more bank

²³ Pgs. 6 -7.

²⁴ Pgs. 5 – 7.

²⁵ Pgs. 6, 9, 10.

erosion than Illinois. This is probably because the river has been channelized in Indiana, and it still may be trying to develop a meandering pattern even though the banks do have mature stands of trees stabilizing the banks. Eroded bank materials are immediately delivered to the river and are thus available for transport or for deposit in other parts of the river where they are not wanted.”

ISWS, River Geometry, Bank Erosion, and Sandbars, 2001²⁶.

“The cross section data showed some alarming trends. Six Mile Pool is trapping sediments at a rate of about 0.67 percent per year since 1980. The pool has lost 13.4 percent of its 1980 capacity through 1999. This is a fairly high capacity loss compared to many human made lakes in Illinois. The reach of the river from Singleton Ditch to State Line Bridge, the so called Momence Wetlands area, also has shown a similar trend to the Six Mile Pool area losing its capacity. This reach has lost about 10.2 percent of its 1980 capacity, which translates into 0.51 percent capacity loss per year. Since 1980, the river within its banks in the area has accumulated about 127,500 cubic yards of sediment.

Suggested management alternatives:

- Stabilize severely eroded banks
- Leave undisturbed, the banks that are stable
- Remove in-channel sandbars
- Install chevron structures in front of several islands
- Remove sediment deposits at the mouths of tributaries
- Hydraulic modification is feasible for tributary mouths
- Sediment removal from the Six Mile Pool
- Best management practices (buffers, detention ponds, wetland creation, etc.)
- Establish old meanders including side channel sediment traps”

The Daily Journal, Bill Byrns, “*Sand Solutions May Lie in Indiana*”, Dec. 6, 2002.

“The volume of sand has grown to the point where the peak flows have decreased, and annual flooding is no longer enough to clean out the sand and silt deposits. If no action is taken, the river between Momence and Indiana will lose about two feet in its deepest pools and about six inches on average along the entire channel over the next 40 years. The findings are ominous for walleye recovery on the Kankakee. It’s not hard to see the problem (Jim Mick – IDNR) It’s logical to assume that shallow pools in summer, and low water times have caused the general decline in walleye.”

The Daily Journal, Bill Byrns, “*Kankakee River Priorities Protect Good Stuff First*” (Based on Strategic Sub Watershed Identification Process KRBC/IDNR) Jan. 16, 2005

“The Kankakee River Basin Commission broke ranks with the state in their strategic watershed identification process. The State recommended 5 percent of the watershed be selected, and they selected 14 out of the 75 identified in the basin. Our dilemma stems from the fact that the river is threatened from sand bed load and sediment that is not measured by the state’s threat index said J.R. Black, Chairman of the KRBC. We included the entire main stem of the Kankakee in our identification process.”

²⁶ Pgs. 63 and 64.

The Daily Journal, Bill Byrns, *Smothered in Sand*, 2002.

"In 1995 the amount of sand and sediment in the Six Mile Pool was estimated at 1.3 million tons. Imagine hundreds of semis overflowing with loads of dirt and sand waiting to unload all along the river. It's not imagination. That's only a fraction of the sand already here, according to the United States Geological Survey. "What happens to us here in Indiana affects people who live along the river in Illinois," said Charles Daube of Walkerton, IN during a tour of levees damaged during the severe storms of January and February. Heavy rains and near record flows along the Kankakee, Yellow and Iroquois rivers damaged four major levees in Indiana and triggered floods that damaged 771 homes and businesses in Iroquois County and over 175 properties in Kankakee County."

The Daily Journal, Bill Byrns, *"River Sediment Serious"*, April 19, 1996.

Armed with a barrage of charts and graphs, a spokesman for the USGS said that sedimentation in the Kankakee River is becoming serious. We've documented loss in both channel capacity and loss of channel in two sections of the river, said Paul Terrio, hydrologist and project director for the USGS Kankakee River Study. When asked pointedly by members of ARK, how he would describe the problem, Terrio replied grimly, "It's serious".

The Daily Journal, Bill Byrns, Dec. 6, 2000

"The Kankakee River is dying", according to the latest, most comprehensive study of sedimentation ever conducted. Nani Bhowmik, the principal scientist of the ISWS, said "the decline may seem small at less than 1 percent per year, but the trend amounts to a disturbing 15 to 16 percent over the past 19 years." "It means the river is getting shallower and narrower." The Corps of Engineers calculates that between 130,000 and 150,000 cubic yards of sand are at the state line area – an amount equal to 8,500 semi loads. "We are in a much better position to do something now than we were in the 1980's", says Nani Bhowmik, who has studied and seen the river decline over the past 30 years."

Copied and pasted from the Introduction section, page 5, of the attached file:

A suspended-sediment budget was constructed for the Kankakee River Basin using suspended-sediment data collected from January 1993 through December 1995 at six existing U.S. Geological Survey streamflow-gaging stations. The Iroquois River delivered almost twice as much suspended-sediment load to the Kankakee River main stem as did the Kankakee River above its junction with the Iroquois River. For the Iroquois River, the portion of the drainage area in Illinois contributed 86 percent of the total suspended-sediment load measured during the study. In contrast, for the Kankakee River upstream from the junction with the Iroquois, the portion of the drainage area in Illinois contributed only 17 percent of the total suspended-sediment load measured during the study. A net increase in total suspended-sediment load of 659,000 tons was measured in the main stem Kankakee River from the mouth of the Iroquois River to the streamflow-gaging station at Wilmington, Ill. This portion of the Kankakee River drainage had the highest suspended-sediment yield at 861 tons per day per square mile.

Please be sure to read Table 1, on page 7 of the attached file and Table 2, on page 10. Both of these tables provide suspended sediment loads.

Copied and pasted from the Conclusion, page 12:

CONCLUSION

Sediment data were collected at six U.S. Geological Survey streamflow-gaging stations from January 1993 through December 1995 in the Kankakee River Basin in northeastern Illinois and northwestern Indiana. These data were used to construct a sediment budget of the basin for determining the relative contributions of suspended sediment to the Kankakee River from selected subbasins and tributaries. The Iroquois River contributed almost twice the amount of suspended sediment (862,000 tons) as the upper Kankakee River (489,000 tons) during the study. Both rivers supply equal amounts of total water volume, but the Iroquois is the major source of discharge during high flow events, when most of the sediment is transported. The median suspended-sediment concentration was 14 mg/L higher in the Iroquois than in the upper Kankakee River. The contribution of sediment from the Iroquois River drainage area in Illinois was high; 86 percent more suspended-sediment load was measured at the streamflow-gaging station at Chebanse, Ill., than at Iroquois, Ill., on the Iroquois River. The opposite situation was indicated for the upper Kankakee River, where 83 percent of the total suspended-sediment load at Momence, Ill., was measured at the two gages upstream from Kankakee River at Shelby, Ind., and Singleton Ditch at Schneider, Ill.

An increase in total suspended-sediment load (659,000 tons) was measured from the junction of the upper Kankakee and Iroquois Rivers to the Kankakee River streamflow-gaging station at Wilmington, Ill., during the study period. The suspended-sediment yield for this part of the Kankakee River drainage area (861 [(ton/d)/mi²]) was the highest measured in this study.

The following information is from a recent e-mail from an ISWS scientist. The USGS no longer operates the sediment gaging stations on the Kankakee River. The WARM program at Illinois State Water Survey (ISWS) collects weekly samples at Momence and Wilmington. Data through WY2009 is posted online at <http://www.isws.illinois.edu/warm/>. In the left column, under “Water and Climate Data,”

click on “In-stream sediment.” Click on [#124](#) Kankakee River near Wilmington, IL [CSV](#) (USGS #05527500) and [#125](#) Kankakee River at Momence, IL [CSV](#) (USGS #05520500), and you can download the data which I have attached in two Excel files.

The “WARM” file and the “Streamstats” file provide some explanation for the data in the spreadsheets.

These sediment concentration numbers are for suspended sediment only. They do not reflect what the USGS, ISWS and other agencies refer to as sand bed load, which the ISWS scientist agrees is central to most of the issues for the Kankakee River in our area. But, the findings of the 1993-1995 study and the recent data point out that the Iroquois River is contributing a lot of the suspended sediment to the Kankakee River.

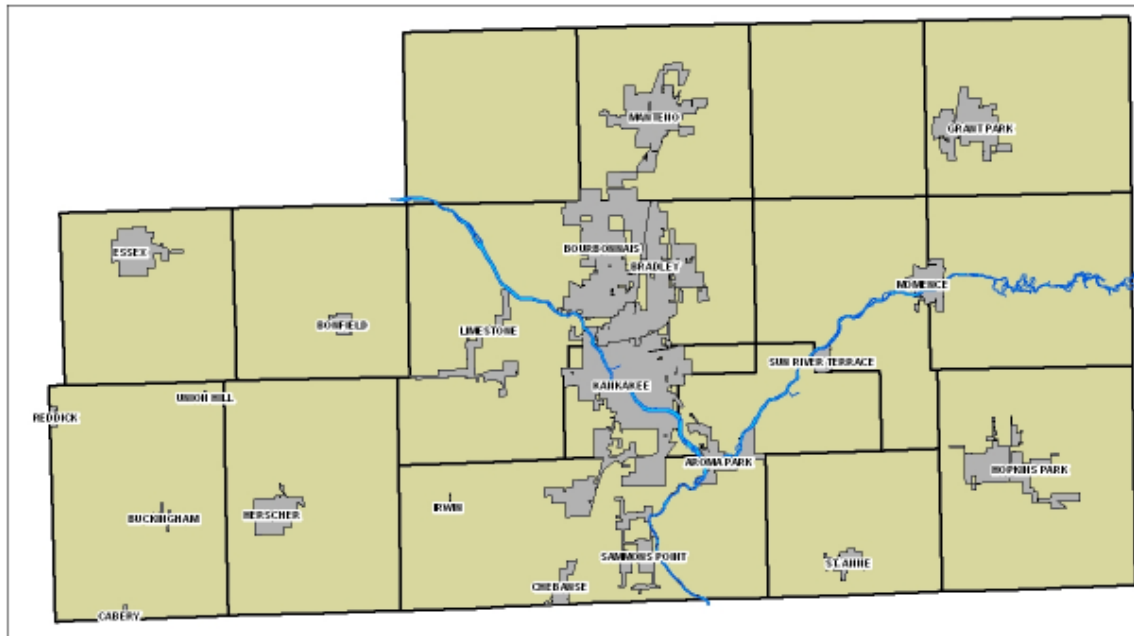
LAND USE

The Kankakee River has attracted human settlement since prehistoric man first arrived in the river valley. Beginning with small scattered encampments which later became organized Native American villages, aboriginal people settled along the banks of the river to take advantage of its many resources. The Native Americans used the river for fishing, hunting, water supply, and transportation which allowed their communities to thrive for many centuries. These same attributes also attracted the first European settlers to the area. Fur traders and hunters from upper Michigan set up camps along the Kankakee River as base camps and trading posts.

As more and more Europeans migrated into the area, cities and villages began to materialize. The cities of Kankakee and Momence and the village of Waldron, later renamed Aroma Park, were centered on the Kankakee River. With the new settlers came new uses for the river. While the Europeans used the river for the same purposes as the aboriginal people, they also used it for ice production, a power source for saw and grist mills, and later for recreational purposes. Today, we still see an attraction to living in close proximity to the river. Many of these older settlements have expanded, and development has steadily crept along the river banks. The City of Kankakee has expanded from its original half mile of river frontage on the north side of the river to development on both banks of the river for nearly four and a half miles.

Likewise, the Village of Aroma Park has expanded from a tiny settlement with about a quarter mile of river frontage to a municipality with approximately two miles of developed river frontage. The City of Momence has not expanded much past its original boundary; however, unincorporated development has radiated outward from the city along both banks of the river in an eastern and westward direction.

In recent decades, three additional municipalities have appeared along the banks of the Kankakee River. While they didn't begin as river communities, the villages of Bradley and Bourbonnais have both expanded their boundaries to include the river frontage on the north bank of the river. The village of Sun River Terrace was established in the 1970s when multiple riverfront developments in Ganeer and Aroma Townships incorporated to form the village. The following map shows Kankakee County's municipalities and their current relationships to the river.

Figure 2: Kankakee County Municipalities

Staff at the Kankakee County Planning Department performed a visual survey of land use throughout Kankakee County in the fall of 2009. This survey was conducted utilizing 2006 color aerial photography from the county's Geographical Information System (GIS). Land within Kankakee County was classified into twelve categories. These categories are described as follows:

Agriculture: All lands used for agricultural purposes and all lands in a natural state that are not owned by a government or preservation authority.

Single-Family Residential: All lands used for single-family residences including individual mobile homes.

Two-Family Residential: Properties that have duplex units.

Multi-Family Residential: All lands containing structures with three or more dwelling units.

Manufactured Home Park: All land used for mobile and manufactured home communities.

Commercial: All lands used for commercial purposes including retail, office and service establishments and associated parking facilities.

Industrial: All lands used for manufacturing and industrial purposes.

Park / Open Space: All lands used for recreation and preservation whether public or private. This includes golf courses and other privately owned recreation.

Public / Quasi-Public: Structures and land used for governmental and institutional purposes including utility facilities, religious institutions, public or private schools, and government administration.

Mining, Quarrying, and Landfill: Lands used for the extraction and/or storage of natural resources or land used for the disposal of solid waste.

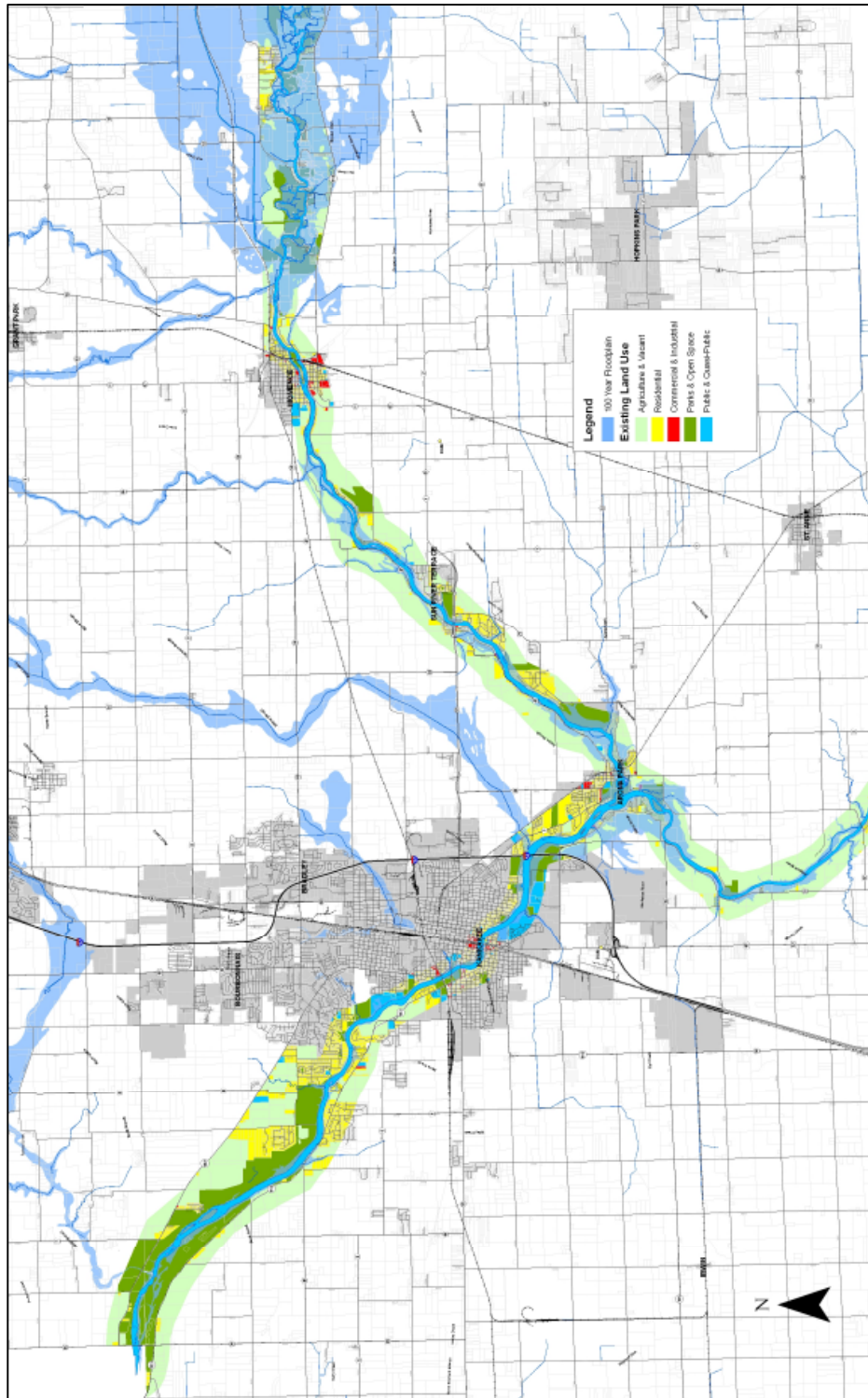
Parking Lots: Parking facilities that are stand-alone and not associated with another use or structure including public parking lots.

Vacant Urban Style Lots: Vacant land that has been subdivided and entitled for the purpose of new development. Generally these lots are small in nature and have the necessary utilities and infrastructure in place.

Acreages were calculated for the twelve categories previously listed above to determine the quantity of each use within the county. This calculation created a base point for comparing other geographical areas. The 100 year floodplain along the Kankakee and Iroquois Rivers was extracted from the data set, and a separate acreage calculation was created for this sub-geographical area.

Likewise, to obtain an understanding of land uses in close proximity to the rivers, a ½ mile buffer was applied to the river banks, and calculations for acreage totals were performed for land within ½ mile of the river. The following map depicts land uses within ½ mile of the Kankakee and Iroquois Rivers in conjunction with 100 year floodplain.

Figure 3: Existing Land Uses Within ½ Mile of the Kankakee and Iroquois Rivers



Source: Kankakee County Planning Dept., 2010

The following table illustrates the quantity of each land use for these geographical areas.

Figure 4: Existing Land Uses – Kankakee & Iroquois River Vicinity 2010

Land Use	Unit	Within ½ Mile of Kankakee & Iroquois Rivers	Percentage	In Kankakee & Iroquois River Floodplain	Percentage	Total County	Percentage
Agriculture	Acreage	33,428.000	53.750%	4,165.000	7.52%	357,528.000	82.39%
	Square Miles	52.000	53.750%	6.500	7.52%	558.630	82.39%
Single-Family Residential	Acreage	12,213.000	19.640%	13,235.000	23.94%	32,767.000	7.55%
	Square Miles	19.000	19.640%	20.680	23.94%	51.190	7.55%
Two-Family Residential	Acreage	1.390	.002%	.240	.0003%	106.000	.02%
	Square Miles	.002	.002%	.0003	.0003%	.160	.02%
Multi-Family Residential	Acreage	219.000	.350%	19.000	.02%	2,438.000	.56%
	Square Miles	.340	.350%	.020	.02%	3.800	.56%
Manufactured Home Park	Acreage	12.000	.018%	10.000	.02%	823.000	.18%
	Square Miles	.018	.018%	.015	.02%	1.280	.18%
Commercial	Acreage	337.000	.537%	91.000	.16%	2,580.000	.59%
	Square Miles	.520	.537%	.140	.16%	4.030	.59%
Industrial	Acreage	321.000	.516%	147.000	.25%	2,645.000	.61%
	Square Miles	.500	.516%	.220	.25%	4.130	.61%
Park / Open Space	Acreage	10,318.000	16.660%	32,931.000	59.56%	13,839.000	3.18%
	Square Miles	16.120	16.660%	51.450	59.56%	21.620	3.18%
Public / Quasi-Public	Acreage	2,573.000	4.155%	3,028.000	5.47%	5,522.000	1.27%
	Square Miles	4.020	4.155%	4.730	5.47%	8.620	1.27%
Mining, Quarrying, & Landfill	Acreage	62.000	.100%	73.000	.13%	3,018.000	.69%
	Square Miles	.097	.100%	.114	.13%	4.710	.69%
Parking Lots – Not Associated with Other Use	Acreage	68.000	1.106%	8.800	.02%	142.000	.03%
	Square Miles	.107	1.106%	.013	.02%	.220	.03%
Vacant Urban Style Lots	Acreage	2,567.000	4.145%	1,605.000	2.89%	12,512.000	2.88%
	Square Miles	4.010	4.145%	2.500	2.89%	19.550	2.88%
Total	Acreage	62,119.390	100.000%	55,313.040	100.000%	433,920.000	100.000%
	Square Miles	96.734	100.000%	86.382	100.000%	678.00	100.000%

Notes: Based on Kankakee County GIS Parcel Data and 2010 Land Use Survey conducted from aerial photography dated 2006.

There are 433,920 total acres of land area in Kankakee County. The majority of this acreage, 82.39%, is in uses that can be classified as agriculture. This figure indicates that Kankakee County is an agriculturally-based community, and the quantity of farmland indicates that it will remain as such into the foreseeable future.

Single-family Residential uses are the next highest ranked category of land use with 32,767 acres or 7.55% followed by parks / open space at 3.18%. This represents a 2.3:1 ratio of single family residential acreage to park/open space acreage.

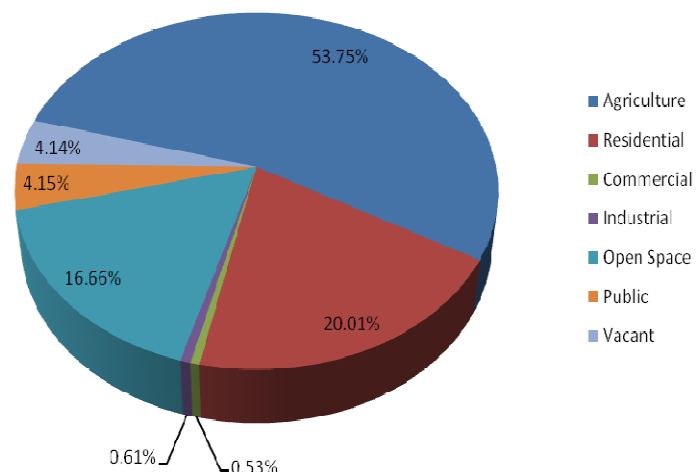
Vacant urban style lots rank as the fourth highest land use category representing 2.88% of the county's existing land use. While this is not a large number when compared to the entire county's land mass, it is surprisingly high when compared to other urbanized uses. There are 65,553 acres of land in urbanized uses, if the acreage figures for agriculture and park/open space are subtracted from the county total. When the acreage total for urbanized uses is compared to the

acreage total for vacant urban style lots, it is discovered that 19% of the county's urbanized land uses are vacant parcels.

Acreages were calculated for land within the 100 year floodplain of the Kankakee and Iroquois Rivers. This floodplain consists of 55,313 acres of land or 12.7% of the county. In this analysis, park / open space was the leading acreage category accounting for 59.56% of the river's floodplain area. A distant second was the single-family residential category, comprising 23.94% of this floodplain. Agriculture comprises only 7.52% of the floodplain while public/quasi-public accounts for 5.47%. These figures indicate that the county and its municipalities floodplain regulations have been effective in keeping development in the floodplains to a minimum.

Since the floodplain varies in size along the rivers, acreage totals for land within ½ mile from the rivers was also calculated. By using a uniform distance, a consistent picture of the relationship between uses along the rivers' banks can be obtained. When uses within ½ mile of the river banks are examined, 53.75% of the land is in agricultural uses. This is a very different picture compared to the major land use when just the 100 year floodplain is analyzed. Mirroring acreage categories for the entire County, land use categories within ½ mile of the river banks are in a similar order.

Figure 5: Existing land Uses Within ½ mile of the Kankakee and Iroquois Rivers



As with the countywide totals, agriculture is in the highest category (53.75%), and just like the countywide analysis, single-family residential is in second place, only this time with 19.64%. Likewise, parks/open space is the third highest category, only this time it is at the much higher 16.66%. The fourth highest land use category is public/quasi-public acreage comprising 4.15% of the total land area which is just slightly higher than vacant urban style lots at 4.14%.

While land use calculations can offer an understanding of the relationship and quantity of uses for a geographical area, these figures cannot illustrate potential impacts to humans and the built environment when compared to potential hazards associated with rivers and their floodplains. In October 2005, the Kankakee County Board adopted the county's first Natural Hazards Mitigation

Plan. Chapter 3 of this Plan compares structures within Kankakee County with structures in the floodplain of the rivers and discusses potential loss if flooding were to occur.

The Plan, based on refined 2000 U.S. Census Data, shows that there are 31,615 structures in Kankakee County, and 3,199 of these structures lie within the various floodplains. Of these structures, there are 30 confirmed repetitive loss properties located within the county's floodplains. A repetitive loss property is defined as a property that has received two flood insurance claim payments of at least \$1,000 each since 1978. Repetitive loss properties are of special concern. Although they represent only 2% of the insurance policy base, they account for 33% of the country's flood insurance claim payments.



Flooded home on Kankakee River, 2008 Flood.

The Plan also discusses the economic and financial impacts to structures within the floodplains. Structures are classified into four structure types: single-family homes, manufactured homes, other residential, and non-residential. An average dollar value was determined for each of the four categories. They are as follows:

- Single-family homes: \$135,000
- Manufactured homes: \$38,000
- Multi-family structures: \$720,000
- Non-residential structures: \$2,500,000

Additionally, 50% of the structure value was applied to the cost of contents for residential uses, and 100% of the value of the structure was applied to non-residential structures for cost of contents.

Using these figures, there is \$683,602,000 of potential structural loss within the floodplains of Kankakee County. If the loss of contents is added to this figure, the potential financial impact rises to \$906,102,000. These figures illustrate the importance of sound floodplain management.

Imperviousness is a surface's inability to allow water to percolate through. As an area urbanizes, the increase of impervious surfaces, rooftops, driveways,

sidewalks, roads, etc. can have a dramatic impact on natural drainage systems and waterways, as well as a degradation of water quality.

Of the 433,920 acres of land area in Kankakee County, 16,310 acres or 3.75% is covered in impervious surfaces. These figures were derived utilizing plani-metric data from the County's GIS dated 2006. The following table categorizes the various impervious surfaces and gives acreage totals and percentages for each.

Figure 6: Impervious Surfaces in Kankakee County 2006

	Total Acres	Percentage of Entire County
Acres of land surface in Kankakee County.	433,920	100.00%
Acres covered by structures.	4,247	0.97%
Acres covered by roads.	6,453	1.48%
Acres covered by parking.	2,918	0.67%
Acres covered by other means.	2,683	0.61%
Total acres covered by impervious surface in Kankakee County	16,310	3.75%

Source: Kankakee County GIS

While these figures are not large when compared to the county's overall acreage, they should be monitored as the county urbanizes in the future. Instituting best management practices for stormwater run-off and managing stormwater in a comprehensive, countywide program will help ensure that these figures do not become misaligned and create problems in the future.

INTRODUCTION OF SWOT ANALYSIS

A SWOT Analysis is an exercise planners can use to examine the **S**trengths and **W**eaknesses of a community as well as the **O**pportunities and **T**hreats that the community may be facing. Strengths and weaknesses examine current conditions, while opportunities and threats examine future possibilities. Generally speaking, strengths and weaknesses are internal factors, while opportunities and threats are factors being imposed by outside forces. The following matrix is an example of a typical SWOT Analysis worksheet.

I N T E R N A L	<u>STRENGTHS</u>	<u>WEAKNESSES</u>
	<u>OPPORTUNITIES</u>	<u>THREATS</u>

During the month of March 2010, the River Roundtable group divided into four (4) smaller groups and performed a SWOT Analysis on the Kankakee River. Each group was assigned a different aspect of the river. The groups were:

- Environmental Sustainability & Agriculture
- Economic & Community Development
- Tourism & Recreation
- Public Education & Outreach

The following pages discuss the outcomes of the SWOT Analysis for these categories. A complete SWOT analysis was not compiled under the Public Education and Outreach category.

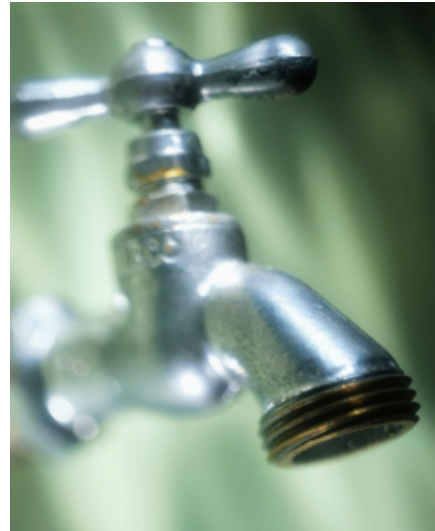
ENVIRONMENTAL SUSTAINABILITY & AGRICULTURE

Strengths Potable Water Supply Volume of Water Stormwater Management Filter for Pollutants Wildlife Habitat Scenic Value Real Estate Values Recreational Opportunities Economic Growth Historic Settlement State Parks Forest Preserves Agriculture Drainage Job Development Electrical Power Recruitment Value Quality Fishing Scenic Trailways Agricultural Practices & Management Local Ordinances	Weaknesses Flooding Limited Access due to Private Development Lack of Public Awareness (Local & Regional) Lack of United Voice Lack of Public Education / Outreach Jurisdictional Boundaries Lack of Government Funding Public Apathy Public Planning Bridge Crossings Education Limited Dialogue with Indiana Officials
Opportunities Unrestricted Water Availability Tourism Development Recreation Development Aquatic Resources Urban Renewal Education Public Support Increased Public Access Expand Economic Development Bi-State / Tri-County Cooperation Expand Trail System Improve Drainage Improve Bank Erosion Improve Flood Control	Threats Sand and Sedimentation Iroquois River Sediment Load Threats to Potable Water Supply Degraded Aquatic Resources Lack of State / Federal Resources Recreational Threats Invasive Aquatic Species Increased Flooding Real Estate Planning Agricultural Harmony with Development and Recreation Lack of Public Awareness Loss of Wetlands Over Usage of Surrounding Land Decreased Property Values Need for Development of Flood Plain Areas Ice Jams Quality of Life Strategies Incompatible Land Uses

Strengths

Potable Water Supply

The Kankakee River has an abundant flow that provides an excellent source of potable water for more than 80,000 people. The local water supplier, Aqua Illinois, has operated effectively within their permitted limits. The potable water supply affects all aspects of our communities including: residential, business, industrial, agricultural, health and safety. Water is a precious commodity, and everyone must understand that there is no new water, only recycled water. Water is necessary to sustain life, and the mere fact that we have an abundance in our region is a blessing. Quality of life diminishes with a shortage of potable water.



Volume of Water

Authorities agree that the Kankakee River has an abundant supply of water to serve area communities and to support aquatic life. Although the flow fluctuates throughout the year, the average daily flow rate of the River is 3.9 billion gallons daily. The flow rate, when managed properly, is sufficient to meet the demands for water use and for maintaining a healthy river system. With water being such a precious commodity, we are fortunate to have the Kankakee River in Kankakee County.

Stormwater Management

The Kankakee River and its tributaries serve as essential arteries for the distribution of stormwater. The runoff can be captured and the flow controlled until it is discharged into the River system. This process helps to prevent flooding in the metropolitan areas where the runoff is rapid and the amount of open space is diminished. In rural areas, the runoff is less rapid and generally into drainage ditches that eventually discharge into tributaries or the main river stem itself. The collection of stormwater is a safety issue, and the river serves to drain excess water from the area in a controlled manner.

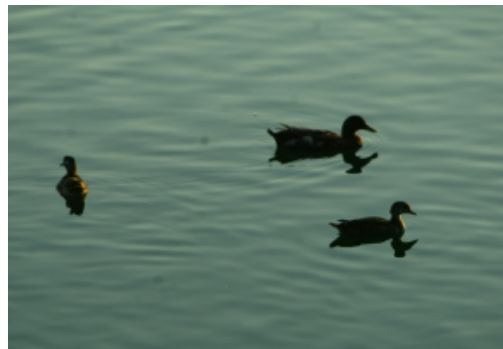
Filter for Pollutants

Particularly important is having a river source to address pollution, and that solution to pollution is its dilution provided by the Kankakee River. Many pollutants are diluted in the river water. These pollutants are often carried in runoff from roadways where there are deposits of gasoline and oil or from farm fields and lawns that contain fertilizers and other chemicals. Many other pollutants enter the system and are diluted fairly quickly in the river water. This helps to reduce serious damage to the environment, though this does not mean that it is not a concern for the amount of pollutants that enter the ecosystem in

this manner. Chemicals need to be controlled so the environment can balance those that do make their way to the river system. There are only a few pollutants that enter the system, but all need to be controlled for the river to be able to dilute them. The sewage system treats raw sewage which is then discharged into the river after processing. The river completes the task of diluting any remaining toxins from the sewage and dilutes chemicals that are used to treat the sewage. The river serves as an excellent filtration system.

Wildlife Habitat

The Kankakee River is home to approximately 84 species of fish, 249 species of birds and two-fifths of all the plant species in Illinois. There are more than 1,000 species of native plants, 75 species for which the survival rate is uncertain, 14 species of large crustaceans such as crayfish, and 14 species of mussels native to the area, including the very rare mucket. Biologists rank most of the Kankakee and Iroquois rivers, along with its nine tributaries, as highly valued aquatic resources. Other large populations of rare aquatic species are found in the Kankakee including the weed shiner fish, the river redhorse fish, and the mucket mussel. The 70 plant species mentioned above include the extremely rare Mead's milkweed which is considered endangered in the U.S. Also, the Kankakee Mallow is rare and currently found in only one area in Kankakee County. The Kankakee River habitat is being threatened by increasing amounts of sand and sediment.



Scenic Value

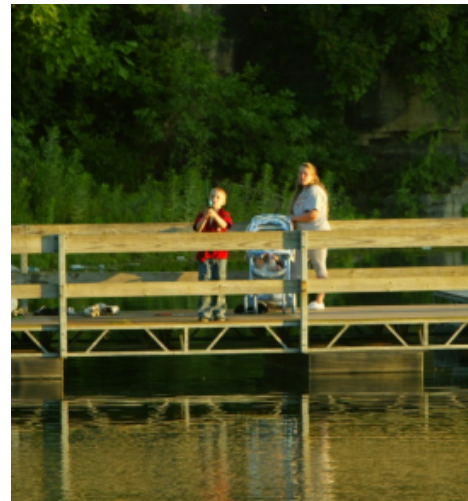
The mere beauty of the Kankakee River has inspired many to write poems, books, articles, letters, and music. Others have captured the scenic beauty of the river via art. Others have captured images of the river's beauty on film and have used it as a backdrop for personal photos. Many scenic areas of the river remain unchanged and natural. People recreate and exercise by using the river's waterways or walking trails adjacent to the riverbanks. The river's beauty enhances waterfront parks and forest preserves. The river's beauty contributes to residences and landscaping. The scenic beauty is further enhanced by the wildlife the river supports along the main stem and tributaries. The quality of life of the area is enriched by the Kankakee River.

Real Estate Values

The demand for riverfront property and property in close proximity to the river is significant in the Kankakee area. These properties command higher values, and that value is based primarily on the distance the location is from the river with further consideration being given to the availability of access to the river. Real estate agencies highlight these features in advertising properties. It is undeniable that property along the river enhances value.

Recreational Opportunities

The Kankakee River system provides a wealth of recreational opportunities. These opportunities contribute to healthy lifestyles for the citizens of the area and are frequently enjoyed by visitors who travel here to recreate. The opportunities seem unlimited when one attempts to list the vast number of activities people actively seek in relation to the river. Each category can be further defined in several subgroups. For example: water craft includes pleasure boats, canoes, fishing boats, kayaks, pontoons, rafts, and powerboats, among others. Recreation categories include: fishing, boating, swimming, hiking, camping, picnicking, walking, skiing, tubing, sightseeing, wildlife viewing, and hunting.

**Economic Growth**

An abundant supply of safe potable water is a strategic recruitment tool to encourage economic development. Businesses and industry depend on water availability. Water is needed to: develop products, support manufacturing processes, provide for safety, support product use, support workforce needs, or for general purposes.

Historic Settlement

The Kankakee River system was a primary reason early settlers established communities in this area. The early Native Americans settled along the River and were followed by the explorers, the fur traders and hunters. The Kankakee River system was what supported economic livelihood, and it also provided the transportation artery for goods. The famous trails that crossed the region integrated well with the Kankakee River system. Thus, settlements along the river began to grow and develop into communities and towns. The river was critical to development because it served as a source of food, water, transportation, ice, and the mechanism to connect settlements. The history behind the settling of this area is well documented and readily available for those interested in history.

State Parks

The Kankakee River State Park is at center stage for Kankakee County outdoor recreation and has attracted as many as 1.6 million annual visitors in recent years. This park and other outdoor sites held by the Illinois Department of Natural Resources (IDNR) generate an estimated \$14 million a year in economic output. These outdoor areas provide a wealth of recreation for local citizenry and also serve as major draws to attract visitors to our area. Our area boasts having

33 sites listed on the Illinois Natural Areas Inventory and an additional 8 sites listed as Illinois Nature Preserves.

Forest Preserves

The Kankakee area is fortunate to have a Forest Preserve District with a mission to protect the remaining forest areas. Today, area forests cover only 3.1 percent of the land, and much of this forested area borders the river system. The original forests that lined the Kankakee and Iroquois Rivers were filled with hardwoods such as white oak, ash, hickory, and black walnut. Most of the woods today are second growth sprouted from cut-over woods and now are a century or more old. These wooded areas help to enhance the character of our communities and serve as home to various wildlife species. They further serve to protect our river system by stabilizing the surrounding soil and in preventing erosion.

Agriculture

The Kankakee River system plays a critical role in agriculture. The river system allows drainage of the agricultural lands, and it serves the agricultural community as a source of irrigation for crops. It provides water for livestock production businesses, and water is used in mixing fertilizers, weed control chemicals and pesticides. Most farms also are supported by wells as a drinking supply, and all are dependent upon the river system for drainage.



Drainage

Depending on the authority quoted, the drainage area alleviated by the Kankakee River system is approximately 5,165 to 5,185 square miles. Proper maintenance of the drainage ditches, tiles, storm sewers, and waterways is critical to facilitating drainage. The river, serving as the primary artery for the drainage system, also provides the mechanism for flood control for the area. Drainage is key to protection, health, and welfare of our urban and rural areas.

Job Development

The number of jobs resulting from the Kankakee River system has never been determined, but there are a significant number of jobs directly connected to the river, and others are secondarily associated with the river system. In terms of the retail value of the river-related businesses that sell, repair, maintain, and provide storage for the various types of equipment, clothing, gear, and supplies, there is even more economic value. There are jobs in area businesses and parks that support river activities including boat clubs, park staffing, and nature interpreters. Jobs are provided by potable water suppliers and the sewage disposal industries. Other related jobs include biologists, safety staff, researchers, water quality experts, and natural resources staff.

Electrical Power

The Kankakee River serves as the source of power for the hydroelectric generators located at the City of Kankakee Power Plant at the Kankakee dam. The plant generates an annual average of 3.4 million kilowatts of power used to power the KRMA wastewater treatment



plant, and the excess power is sold to the power grid. The nuclear power plant located near Lorenzo Road in Grundy County makes use of the Kankakee River system to cool its generating process. Power generated in this plant is used at various locations throughout the Midwest.

Recruitment Value

The Kankakee River, generally accepted as the area's greatest natural resource, is frequently used as a recruitment tool in strategies to stimulate economic development. The Kankakee River makes the area attractive to prospective businesses for investment or expansion. The river also serves as a superior recruitment tool for tourism. It provides scenery, recreation, and great outdoor experiences. The river has proven to be attractive in the development of residential subdivisions and serves as an enticement for developers to invest in the area. The fact that the river provides an abundant supply of potable water and a wealth of recreational opportunities makes the river system an enticement for families to move to the area.

Quality Fishing

The Kankakee River supports 84 species of fish. Six species have been recently classified as endangered or threatened and are now protected. The river is considered a premier fishery in Illinois. The current walleye state record fish was caught in the Kankakee River. The smallmouth bass population is considered one of the best in the Midwest. Although Kankakee River fishing is best known for walleye and smallmouth bass, other Kankakee River fish include: channel catfish, carp, buffalo, rock bass, crappie, blue gill, largemouth bass, and northern pike.

Scenic Trailways

The developing trail system bordering the Kankakee River has become a popular attraction for those who walk, run, bike, and sightsee. The oldest section of the trail begins in Bourbonnais and continues through the Kankakee State Park to Old Chicago Road in Will County. The most recent addition begins near River Road Park in Kankakee and weaves through the city to a location near the Aqua Illinois water company.

Agricultural Practices & Management

The agricultural industry has been addressing erosion control, nutrient runoff and drainage measures in an aggressive fashion in recent years. In Kankakee County the T by 2000 erosion program has been achieved, and continuous improvements beyond that established benchmark are being attained. Farmers are managing the use of fertilizers and chemicals in a manner that is beneficial to production and that is environmentally friendly. Most fields are managed in more sensitive ways to ensure the minimum amount of erosion and to be beneficial to both the farmer and the environment. Some drainage ditches are being managed in a more environmentally sensitive manner such as the model program in the lower portion of Langham Creek in Iroquois County. There, 8,000 acres of sub-marginal farm land has been placed in the Conservation Reserve Enhancement Program to better address erosion issues. In addition, major log jam obstructions have been removed, and that has resulted in improved flow and the prevention of sediment trapping behind the jams.

**Local Ordinances**

The adoption of Kankakee County's stormwater management ordinance was a major step toward the protection of the Kankakee watershed. Oversight, regulations, best management practices, educational emphasis, and the combined effect of these regulations have addressed many of the stormwater and sediment issues that have been a major concern in the area.

Weaknesses

Flooding

The Kankakee River system is becoming more prone to flooding due to sand and sediment accumulation. As a result, the river can no longer store as much floodwater within its banks as it originally could. The Six Mile Pool has lost one-third of its storage space, and the rate of loss is increasing. The river lost 13 percent of its storage capacity over a 19-year period according to two studies using cross-section measurements. The sand bed load in the river continues to move downstream filling the river's storage space. Average floods now cause water to top the banks causing damage. Until the cause of sand bed loads and sediment is corrected, the storage capacity of the river will continue to diminish, flooding will be more frequent, and damage will increase.



Limited Access due to Private Development

Limited access presents various concerns. A major portion of the river access is privately owned, and, therefore, public access is limited. We are fortunate to have several riverfront parks that provide access opportunities, but these are mostly found in the metro areas. Access for boats and canoes is also limited. Some of the access for launching boats is not designed or developed in a manner that is user friendly. There is a need for additional access points in both the upper reach and lower reach of the system. Private developments encompass more of the riverfront areas, and this will continue to diminish potential access points. Urban sprawl is beginning to affect the area, and indications are that this will increase in the future. Planning for access, protection of the river system and watershed are needed.

Lack of Public Awareness (Local & Regional)

Regionally, the general public has a lack of awareness about the Kankakee River and its general location. On the other hand, local people are very aware of the river's beauty and its recreational opportunities. The river simply has not been marketed effectively to those who reside beyond the watershed. Locally, the general public tends to be aware of the strengths of the river system but not its threats and weaknesses. People generally feel that if the system provides water, conveys sewage, and provides recreation, then they believe all is well. Those who live near the river are becoming more aware of specific threats as they experience property damage from flooding. Those who boat or fish the river are very aware of the sand bed load concerns, but they do not have a clear understanding of how serious the problem is if it is not addressed. The effort to educate the public on river issues has fallen short of the needs.

Lack of United Voice

A few organizations have made efforts to address issues facing the Kankakee River System, and there are groups that are interested in improving the system. Others are interested in receiving more information concerning the problems facing the river system. The difficulty is in developing a united voice to speak for the river's needs. It is natural that the first groups to address river issues would be those who frequently use the river and see what is happening to the river. The difficulty is that peoples' interests generally are not peaked until they are directly affected by the problems. When people lose their supply of potable water, farm fields no longer drain, the fishery disappears, navigation becomes impossible and the river is near ecological death, the concerns will be urgent. The problem will be that recovery at that point will be overwhelming. A united voice is needed now from groups in our community representing government, conservation, agriculture, business, industry, and the general public!

Lack of Public Education/Outreach

Although there have been many presentations, seminars, studies, printed reports and meetings held on the river issues, there remains a lack of broad education and public awareness. Most area residents are not aware of the threats facing the river system. Very little, if any, information is available through public education. The subject simply is not addressed well; issues include the value of the river, what the river offers, and the threats facing the river system. The most knowledgeable groups relative to river matters are those who concentrate on conservation and environmental issues. The river system is important to every area citizen as well as to those downstream along the Illinois River. It is a quality-of-life issue, and the need for education is urgent!

Jurisdictional Boundaries

The fact that the Kankakee River System is a bi-state resource causes unifying challenges to solve problems. The river is managed differently in our two adjoining states. Indiana manages the river primarily for agricultural purposes, while Illinois manages the river as a natural stream. There are also four counties (primarily three) in Illinois through which the river flows. Each of these counties has diverse attitudes regarding protection, restoration, and enhancement of the river system. The various drainage districts have varying approaches in regard to drainage maintenance programs. The jurisdictions need to collaborate better on the development of a plan that will protect the river system and foster jurisdictional cooperation.

Lack of Government Funding

There is a lack of government funding to address the concerns of the Kankakee River System. Considerable funds have been spent to study the problems of the basin, but funding is lacking to address the problems identified in the various studies. The Basin Side study being conducted by the Army Corps of Engineers is stalled due to lack of federal funding. When the funding necessary to properly correct the problems are addressed, the government agencies tend to step back

and use the cost-benefit ratio as a reason for not addressing the problem; therefore the problems continue, and now we face the continuing loss of a resource.

Public Apathy

Public apathy almost goes hand-in-hand with public awareness. A common perspective is that “if it doesn’t affect me directly right now, I am not concerned”. There is also the belief that “only boaters and fishermen are complaining; therefore the problem isn’t mine”. The general public needs to be aware that those who recognize the problems and monitor the growth of problems are those who are regularly on the river. These people simply are the first responders. Further, there are those who feel that local government should be responsible for the issues. The public needs to understand that the costs of addressing problems are far beyond the resources of our local governmental agencies. General support is needed to engage state and federal governments to address the restoration issues.

Public Planning

Great strides have been made in the area of public planning, but past mistakes need review. People used to build in floodways or in flood plains without restrictions, and this eventually caused great damage. Residential developments were constructed without effective oversight, planning for proper drainage or for control of runoff. Retention areas were not used in the past as drainage management mechanisms. Agricultural fields were plowed to the river or tributary edges. Properly managed drainage ditches were not planned. Planning for public access was not a concern. Planning must be far more environmentally sensitive for future development including the protection for the Kankakee River System.

Bridge Crossings

The growth in population in the Northeastern portion of Illinois and more specifically in Kankakee and Iroquois Counties warrants additional river crossings. The current traffic flow to and from the western portion of Kankakee County is served by bridges within the City of Kankakee and at Warner Bridge at the Kankakee-Will County Line. The lack of bridges causes traffic congestion during commuter times as people travel to and from work. Future planning must address traffic on the south and southeastern portions of the area.

Education

The Kankakee River System is a natural resource that offers diverse educational opportunities. The river and its watershed are natural biological science settings. The aquatic life for study is extensive. The wildlife of the river is abundant. Study opportunities on waterfowl and other birds are unlimited. Scientific studies on hydrology, hydraulics, sediment and sand bed load provide study opportunities. The history of the Kankakee River system is readily available and provides readers with an understanding of how the geography was formed and

developed. The scenery available for artists is exceptional, and the river is excellent for educational field trips. There also is a lack of education concerning the threats to the system. For example, recent flooding has been blamed on the inflatable bladder on the dam rather than on the loss of spawning habitat. People need to understand the roles of the various agencies in the river restoration process and the reasoning for the studies conducted. The public is not aware of how or where funding sources are accessed.

Limited Dialogue with Indiana Officials

Collaboration between Illinois and Indiana may require federal intervention to broker and mediate the diametrically opposing positions between two states' environmental policies and to help both recognize and acknowledge the degrading impact of the river's condition on the environment.

Opportunities

Unrestricted Water Availability

The area is fortunate to have an abundant supply of water to provide the potable water supply needs of the watershed. The issues that tend to restrict the availability need to be addressed to ensure continued supply. Having an abundant supply provides various opportunities within the basin. Navigability would improve, aquatic life would flourish, flooding would be reduced, and our supply of water needed would be ensured. Population growth within the watershed is dependent upon a safe, available supply of water. The potable water supplier can expand its services to additional areas within the watershed, supply development, and encourage business, industry and manufacturing to come into the area.

Tourism Development

A healthy river system provides opportunities for building tourism. Tourists enjoy visiting areas where there are recreation opportunities and scenery. Our recreational attractions need to be marketed as tourism attractions. The river system provides one of the best smallmouth fisheries in Illinois and is closely followed by the rapidly improving walleye fishery. Activities on and adjacent to the river need to be supported and expanded by our tourism bureau. The Kankakee River State Park and other state, public holdings currently generate 14 million dollars annually in revenue.

Recreation Development

The river system provides substantial recreational opportunities, and appropriately addressing the issues facing the river will enhance those opportunities. The removal of the sand bed load will improve boating opportunities and strengthen the aquatic



system including the fishery. Riverfront parks need to utilize the river to provide additional opportunities for developing fishing piers, friendly user access to the water, scenic picnic areas, outdoor exercise areas and other forms of nature appreciation. The river serves as a backdrop for outdoor activities. Forest preserves provide additional recreational activities and compliment the river's beauty.

Aquatic Resources

Studies have illustrated the negative impact of sand and sediment on aquatic resources. The removal of sand and sediment and preventing it from entering the system is of significant importance. Work on erosion control, nutrient reduction, pollution abatement and debris removal is necessary. All of these measures can make a valuable impact on our aquatic resources.

Urban Renewal

New and improved construction should be planned with the river system in mind. Codes, restrictions and regulations must be followed carefully. Construction sites need to be regulated for runoff. Plans need to include water retention and flow controls. The riverfront developments need to have the value of the river as an emphasis. Planning for the future is important. Open spaces and public access to them need to be planned. Kankakee County needs to protect the river and open space prior to residential/industrial development.

Education

The Kankakee River System offers historical, technical, biological, scientific, artistic, physical and general educational opportunities. Books, studies, art, print, and photography are available to depict facets of the river system. These opportunities also can be used for educational purposes. The Kankakee River State Park has interpreters on staff who provide information to the public. Many schools in the area have materials available on river issues in their libraries. Teachers can take advantage of the materials to teach specific units on the Kankakee River System. Public seminars are provided on various river topics.

Public Support

There are specific groups that provide public support for the Kankakee River. They need to be emphasized and expanded because the river impacts all the lives of those who live in the watershed. Government agencies, businesses, labor organizations, and other groups need to focus on the river as a high priority for their agendas. The health of the river system impacts everyone, and there have been several missed or discounted opportunities. The loss of river navigability, frequent flooding, threats to our potable water supply, clearly visible sandbars, sand that is breaching the dam and built up on shorelines (Fisherman's Park), sand spits, deposits on downstream shorelines, and the declining walleye fishery are of great concern. The river is degrading daily, and these concerns are representative of the great potential losses to the entire

system. The public needs to support efforts to solve the problems facing the river.

Increased Public Access

There is a need for additional river access. There are boat access ramps within the metro area, but some are not large-craft friendly. There are stretches of water where there is no boat or canoe access. Open areas need to be developed for ramps where appropriate. In order to expand the “Water Trail”, small craft launch ramps are needed. Our waterfront parks and forest preserves need to improve their riverbanks to make them more user friendly. Future regional planning must have river access as a priority. To take best advantage of the Kankakee River scenery, trails, picnic areas, fishing access, fishing piers, and exercise areas need to be further developed to provide public access.

Expand Economic Development

A healthy river system represents better quality of life for area citizens and will continue to create a healthier and happier workforce. A river system that ensures an abundant and continuous source of water will strengthen the industrial recruitment by encouraging business and industry to locate within the basin and provide new jobs. River-related businesses will support the needs of river system users. Businesses such as boat sales, repairs, and storage will grow to meet the demands. Fishing tackle and bait shop businesses will be more likely to establish themselves in the area. Residential development adjacent to the river will provide enhancements if the river system is healthy. Appropriate planning of future development that includes the river system as a priority will stimulate economic growth.

Bi-State/Tri-County Cooperation

There are strong proponents within the surrounding counties and our two states that support restoration efforts for the river system. Those who are in direct conflict on the management approach for the system need to work together on critical issues facing the system. Government officials need to be in regular contact with their counterparts across county and state lines concerning river issues. All parties need to be informed on the concerns that each other entity holds in order to address concerns in a manner that benefits the greatest number of constituents while focusing on the overall health of the river system.

Expand Trail System

The trail system has proven to be popular, especially in areas where the river system plays a role in the planning process. There is an opportunity to connect trail segments, although city streets will have to be incorporated to make all connections. Planning and safety issues are necessary in the



expansion. There are portions of the original trail from Bourbonnais through the Kankakee River State Park that are not frequently used. Trails need to be expanded to encompass more of the area's wonderful scenery, historic sites, and river system. Trails that are golf cart and handicap accessible are necessary. Research indicates that small communities that allow golf cart use in their communities have been safe and generated additional business at eating establishments. Similar results are found for snowmobile trails that are adjacent to business establishments.

Improve Drainage

There is need to improve drainage within current established areas as well as in planning for future developments. Runoff needs to be controlled, and the retention of water to slow the flow is imperative. Drainage ditches need to be managed in an environmentally-friendly manner. Agriculture needs to establish buffer zones adjacent to streams and rivers. Metro areas need to follow codes, restrictions, and regulations as set forth in the state's Stormwater Management Plan. Nutrients and chemical runoff from farm fields and residential lawns needs to be monitored and regulated. Overuse of fertilizers and chemicals increases costs for agriculture and for residential lawn care, while degrading the river system. Sub-marginal lands need to be placed into conservation programs such as CRP or CREP that address erosion issues. The theory of getting water off the land as quickly as possible can be detrimental to the river system by causing erosion and flood potential.

Improve Bank Erosion

River bank erosion studies have determined that many river banks are in critical condition and in need of repair. A continued bank stabilization program is necessary. River bank failure causes more sediment to flow into the system. Since river bank erosion areas have been identified and prioritized by level of concern, it is simply a matter of addressing these areas in priority order. Grant funding needs to be obtained to aid in the river bank restoration to assist private and public land efforts to address these issues.

Improve Flood Control

The basic problem that causes flooding is the lack of water storage capacity within the river system. This requires the removal of sand and sediment. The magnitude of this requires state and federal resources. This can be accomplished by instituting various erosion controls including bank stabilization, controlling runoff, providing buffer zones, reducing the amount of sub-marginal land that is in crop production, establishing water retention areas, improving drainage systems, maintaining land cover, and providing stakeholder education.

Threats

Sand

The major threat to the Kankakee River System is sand bed load and sediment which is not easily measured because sand bed load crawls along the bottom of the river's stream. In 1996 a sandbar at the state line was measured to be holding well over 5,000 semi truckloads of sand. In Bhowmik's study, he noted numerous sandbars throughout system measuring from 100 feet in length to over a mile in length. The Upper Pool has lost over one-third of its storage capacity to sand and sediment. The rate of degradation has accelerated in recent years. In a recent 19 year period there was a 13% loss of storage of specific river cross sections. Sandbars move approximately 12 to 24 inches daily depending on the flow; therefore they move very slowly through the system, and additional sand is crossing the Indiana state line daily. Sand has breached the Kankakee Dam and is destroying the downstream reach of the river. Fisherman's Park in Kankakee is partially covered with as much as 4 feet of sand that has accumulated within the last 5 years. Sandbars are now apparent throughout the lower reach of the river. Sand not only steals storage capacity of the river which causes flooding, but it destroys critical habitat that is necessary to maintain healthy, prosperous aquatic resources.

Sedimentation

The Kankakee River System contributes a range of 800,000 to 1.3 million tons of suspended sediment annually to the Illinois River. This does not include the sand that is crawling along the bed, and this sand is not accurately measured. The Iroquois River flows at a slower speed than the Kankakee River, and it carries mainly suspended solids. Some of these solids "settle out" and cause problems similar to the sand problems. Erosion control methods have been introduced in the Iroquois River region, but more needs to be done because the Iroquois River still has excessive amounts of sediment in its flow. Excessive sediment destroys valuable habitat critical to maintaining a healthy ecosystem.

Iroquois River Sediment Load

As stated above, the Iroquois River contributes higher sediment loads to the system than does the Kankakee River. The Iroquois River flows through predominately agriculture areas, and thus, the erosion potential is greater. The Iroquois River in Indiana also flows through predominately agricultural areas, and the erosion potential is greater for the Indiana side as well. The Iroquois River also has several tributaries that have blockages that cause its streams to cut new flow patterns that increase sediment in the system. Some of the larger log jams have been removed, and this will improve the flow, but many remain.

Threats to Potable Water Supply

The year 2009 should have signaled a warning to the general public as to the threats to our potable water supply. Aqua Illinois, the primary supplier of potable water for the area, had to raise its deepwater intake on the Kankakee to ensure its supply of river water that is delivered to its customers as potable water. Aqua's deepwater intake was laid on the bottom of the river 50 to 60 years ago. The sand build up covered the intake pipe which is perforated to allow river water to flow into the system. For several years Aqua performed maintenance on the intake by blowing sand away from the top of the pipe to keep the upper ports functional. Originally, the top of the pipe was 7 feet off the bottom of the river, but by 2009 it was covered with sand. Since Aqua had been blowing sand away from the area in recent years, it is logical to assume that the sand build up is approximately 8 feet. In 2009, Aqua raised the intake to ensure adequate water supply. The 5 foot diameter intake pipe was reset 2 feet from the bottom of the river, and it extends parallel to the River bottom. A question is, if the rate of sand build up remains constant, what will we do in 50 to 60 years? Aqua can't raise the pipe another 7 feet because this will raise it out of the water. In fairness, Aqua does have a surface intake, but it is blocked in some locations by ice, leaves, and debris.

**Degraded Aquatic Resources**

The NIAA cooperated with IDNR to evaluate the walleye fishery in the Kankakee River System. There was definitive evidence through creel surveys and electro shocking surveys that the walleye fishery had declined to the point of being lost as a resource. A comprehensive genetic stocking program was initiated to restore walleye by using native Kankakee River walleye and by using IDNR fish hatcheries to ensure healthy and safe hatch of the spawned eggs. The walleye population has greatly increased, and the hope is that the walleye will be able to reproduce on their own. The mitigating problem is the loss of habitat for spawning purposes that caused the decline. As sand and sediment cover the walleye habitat, it not only reduces prime spawning areas, but it destroys their food source and reduces other aquatic life in the system. The IDNR determined in their study that where coarse substrates predominate in areas chiefly composed of sand, it will reduce the number of fish species present by about 30 percent, reduce the number of individual fish by approximately 70 percent and reduce biomass by about 85 percent. This degradation destroys a portion of the mussel fauna as well. The number of invertebrate taxa also will be reduced from 36 to 65 percent depending on the sand coverage.

Lack of State / Federal Resources

The current economic status for both Illinois and the federal government is critical, and priorities established by these governmental entities would not place resource restoration high on a priority listing. Saving our natural resources and protecting the welfare of the public should receive a higher priority than it currently gets. Politics play an important role in resolving our issues, and without bi-partisan support, restoration efforts will continue to be delayed. The fact that multi-state and federal agencies are involved in any basin-wide restoration efforts also makes an agreement on a comprehensive plan difficult. There are many state and federal agencies that are involved in the process, and this further complicates the potential for an agreement on a final plan. The weight given to the cost of the project tends to overshadow the benefits that can result. Agencies are typically politically driven, and the best ecological plan for the system is often compromised when special interest groups apply political pressure. To be successful, a restoration project of this magnitude needs funding support from both state and federal government. The support of Indiana and Illinois state legislators, governors, and departments of natural resources, U.S. senators and congressmen are essential to ensure success. All entities need to agree on a restoration plan. Any project of this size and scope needs strong bi-partisan political support to succeed.

Recreational Threats

The recreational opportunities of the Kankakee River System have been under continuous threat as a result of the amount of sand and sediment in the system.

Navigation for boats has been severely impaired by mounting sand and sediment in the main stem of the rivers. Sandbars prevent boat traffic from entering areas frequented years ago. This same problem impacts the fishery as evidenced by the declining walleye population. The loss of habitat, food supply, and spawning areas due to sediment and sand has severely impacted the fishery. Invasive species present threats to the fishery by competing



for food supply and by destroying spawned eggs. Canoeing is difficult during low flow due to the sand build up. Numerous sandbars cause people canoeing to resort to wading their crafts in portions of the river system. Larger watercrafts are limited strictly to the main channel within the six-mile Upper Pool. The development of spits and major sand deposits on the banks of the river has caused problems for accessing the river in various areas.

Invasive Aquatic Species

Asian Carp, Zebra Mussels, and Rusty Crawfish are new invasive species in the Kankakee River. These represent challenges to the ecosystem. These species compete for food, destroy other fish eggs and cause other problems that compromise the ecosystem. To help combat these problems, the general public is provided with information on invaders and the public's role in controlling the invaders. Those who boat and fish the river also need to be aware that boats need to be thoroughly washed when moving them from one river to another. Boat holding tanks need to be drained and cleaned. Other equipment such as water holding bait containers and waders need to be drained and washed. One should never transport fish from one body of water to another. The Asian Carp has been sighted in the Iroquois River near Watseka, and other unconfirmed sightings of Asian Carp by knowledgeable people have been noted in the Kankakee River.

Increased Flooding

Flooding in the Kankakee River Basin has become more frequent in recent years. This is due to the fact that the system no longer is able to store the water it could prior to the increase in sand and sediment deposits. Flooding has increased in frequency and scope of area affected. Property damage increased in direct relation to the amount of flooding and its frequency.

Real Estate Planning

Property values drop in areas that experience flooding. Fortunately, our area has not experienced a significant magnitude of flooding. The river system cannot store the amount of water that it used to be able to hold. Many of our roadways experience flooding as a result of the river's loss of storage. Flooding also presents health issues resulting from stagnant waters, mold, residue, and deteriorated infrastructure. The negative economic impact, health concerns, safety, property damage, and loss of real estate values caused by flooding will continue to worsen until the sand and sediment problems are alleviated.

Agricultural Harmony with Development and Recreation

The most serious problem that faces the agricultural community is its lack of drainage. When the system can no longer absorb the water it did in earlier years, the drainage systems perform less efficiently. Many outlets simply are covered by floodwaters and prevent the proper function of drainage systems. Fields now hold water for longer periods of time. A good balance of runoff is necessary. If the fields drain too quickly, erosion carries more sediment into the river system. If the fields drain too slowly, they become unworkable for planting, maintaining, or harvesting. A well functioning drainage system is essential for good crop production.

Lack of Public Awareness

A public well-informed on the problems of the river system and on how the loss of the system affects everyone's life is extremely important. Knowledge concerning

river problems will allow the public to understand the challenges. If the public is better aware of the problems, the cause of the problems and the resulting losses, it can make better, more appropriate choices to resolve the problems.

Loss of Wetlands

Wetlands play a vital role in the health and function of the Kankakee River system. Wetlands serve as natural sponges in high water events by absorbing excess water which reduces flooding. During high water events wetland areas serve as refuges for aquatic creatures and provide them shelter from high current flows in the main stem. Wetlands filter pollutants and sediment as well as add nutrients to the food chain. They also play a vital role in native species sustainability in that some species require certain habitats for reproduction, and these habitats serves as nurseries for their young.

Over Usage of Surrounding Land

The Kankakee River System needs to be managed more appropriately. Although there are agencies that are responsible for various aspects for the management process, everyone is encouraged to contribute in various ways. Even though there are laws in place to prevent specific actions relating to the river's vitality, it is necessary for everyone to be good stewards of the river and its aquatic ecosystems. Simple behavior such as not disposing toxics in drains, conserving fishing, conscientious disposal of leaves and trash, adoption of responsible boating habits, conservation of water , drainage maintenance, providing stream and river buffer zones, proper use of chemicals and fertilizers, and numerous other actions that protect our streams and aquatic life are all valuable efforts for conservation. Water is a precious commodity, and even though the Kankakee River system provides abundance, citizenry need to be conservative in its use. It is necessary that water withdrawn from the river for public water supply be returned to the river in the form of treated sewage water. Agricultural irrigation use needs to be controlled near tributaries where severe dewatering can cause serious problems to the aquatic life in the stream. Minimum flow rates also must be maintained. Over usage means using too much of the resource and using the resource in ways that are harmful to the resource.

Decreased Property Values

As the Kankakee River System degrades, so do the property values surrounding the river basin. Properties that fall in the flood-prone portion of the river system are experiencing more frequent flood damage resulting in reduced values. The devaluation occurs in business, residential, industrial, and agricultural properties. Potential buyers are cautious about purchasing flood-prone properties, and values drop accordingly. As the recreational and fishery value of the river degrades, fewer people are interested in living near the river. Agricultural interest diminishes in areas that are prone to flooding which cause loss in crop production. Residential areas suffer value loss due to the threat of flooding, a major concern for property damage as well as health and safety concerns.

Businesses fear losses due to property damage as well as from inventory losses and work days lost due to flooding. Our viable river resource will attract interest, but a degraded resource diminishes value.

Need for Development of Flood Plain Areas

Development in the flood plain must be restricted and closely monitored to ensure safety and to guard against potential degradation. Although development in the flood plain may be attractive to developers, regulations and restrictions must be assured to prevent problems within the development and adjacent resources. Those who built in the flood plain prior to there being restrictions and regulations have experienced property damage and in many cases improper land use has caused damage to the river system. These issues have increased as the storage capacity of the river has decreased.

Ice Jams

Ice jams tend to hold water back from a normal flow causing additional flooding. Severe ice jams can cause property damage as they build and distribute ice along the banks or when they break and breach the banks with higher flow rates. With the storage capacity being reduced, the ice forms further beyond the banks than in the past when the river basin held more water.



Quality of Life Strategies

Quality of life issues are impacted by increased flooding, and recreational opportunities decrease. Health, safety and drainage issues become more prevalent. The potable water supply becomes threatened.

Incompatible Land Uses

As communities grow and develop, certain land uses can pose potential threats to the environment and ecosystem. In Kankakee County recent land use proposals have raised environmental concerns. Some of these potentially threatening land uses include landfill proposals, a third Chicago area airport near Peotone, quarry development in Rockville, Manteno, and Momence Township, and the replacement of the Stateline Bridge at the Illinois – Indiana border.

It is imperative that communities balance growth and development by planning and creating policies and decision-making processes with environmental sustainability in mind.

COMMUNITY AND ECONOMIC DEVELOPMENT

Strengths	Weaknesses
Potable Water Supply Quality Environmental Asset Effective Codes and Regulations Flood Plains with Land Uses to Protect People and Structures Lifestyle Attraction Scenic Beauty Recreational Use Fishing Waterfront Parks/Public-Owned Lands Ample Public Access Six Mile Pool: True Boat-able Access Strong Riverfront Property Values Redevelopment Opportunities Agriculture: Irrigation & Drainage Resource Business and Industry Opportunities Job Development Potential Name Recognition: "Kankakee" River Ties Communities Together Variety of Existing River Activities	Lack of Local, State and Federal Support and Lack of Awareness for Initiatives to Solve Problems General Apathy / Public Awareness Under-Utilized Commercial Development Lack of Economic Impact Studies on the River Effective Tourism Promotion Lack of River Issues Cohesiveness: "River Central" River Crossings Lack of Residential Land Use Planning Lack of Subdivision/Development Codes Related to the River
Opportunities	Threats
Communities Need to Develop Plans Community Resource Planning Interests Creative Community Development Ideas Riverfront Development Strategic Location of Public Works Facilities Ample Water Supply for Industries Sand Extraction Resource Potential Back Water Lake Opportunity Lodge Development Potential Population of 10 Million People Within 1½ Hr. Driving Radius Boater/Fisherman Access and Facilities Commercial Riverfront Property River Marinas KCCVB Support of Riverfront Shapiro Developmental Center Partnerships Railroad Bridge Restoration I-57 Bridge Reconstruction	Pollution Urgency Sewage Facility Infiltration Decreases in River Storage Volume Increases in Drainage Flows Increased Flooding and B.F.E. Height River Bank Maintenance and Erosion Lack of Planning Increased Cost of Potable Water Losses in Property Values Congestion and Safety Issues Loss of Aquatic Life

Strengths

Potable Water Supply

As the regional, natural, drainage basin, the ebb and flow of the Kankakee River rises and falls in relation with the amount of rain water and melting snow and ice being distributed via surface and ground water tributaries. Currently supplying potable water to approximately 112,000 of Kankakee County's 113,000 residents through privately owned Aqua Illinois, the water supply has been maintained at high levels of quality. Similarly, the water quantity has remained stable as well. With an average usage of 8,000,000 gallons per day, the current EPA certified capacity is 22,000,000 gallons per day. The flow of the Kankakee River at the Aqua Illinois water treatment facility in Kankakee has an average daily flow of approximately 6,000 cubic feet per second (3.9 billion gallons per day). Extreme high flows during flood stages have been measured at approaching 45,000 cubic feet per second (29 billion gallons per day), and the extreme low flow during the 1988 drought reached 272 cubic feet per second (176 million gallons per day).

Quality Environmental Asset

The ecosystem of the Kankakee River has historically had the reputation as one of the cleanest river systems in the Midwest. Kankakee County is fortunate to be located within the Kankakee and Iroquois Rivers basins which provide an ample potable water supply as well as meet the drainage needs of the area.

Effective Codes and Regulations

Kankakee County has updated building codes and regulations for new construction including flood plain regulations. Existing buildings along the river, especially in residential areas, which do not conform to the current codes and regulations, have restrictions on construction additions, and developers are encouraged to upgrade facilities to meet flood protection requirements. Although property owners are sometimes resistant to accepting flood regulations, the Kankakee County Planning Department remains diligent in prohibiting any further nonconforming construction and utilizes the DNR in the review process.

Flood Plains with Land Uses to Protect People and Structures

With a relatively flat terrain, Kankakee County's natural stormwater drainage tends to spread laterally when the banks of the Kankakee and Iroquois Rivers exceed their capacity or are slowed by further downstream connections to the Illinois River. The downtown Kankakee dam does not exacerbate flooding because it was constructed to retain water during dry and normal periods of the year and to maintain a potable water supply volume downstream of the water plant intake. There is almost always a drop below the dam except in the most extreme flood stages when the river may level off on each side. When this occurs, threats are maximized for widespread flooding upstream of the dam. A downstream dam located in Wilmington in Will County functions in a similar fashion. A second Kankakee County dam in Momence was constructed along

the north portion of the river separated by an island from the south portion of the open river.

During the winter of 2008-2009, Kankakee County experienced its most extreme flooding since 1979. Further south in Iroquois County, Watseka's flooding along the Iroquois River was its worst in recorded history. A number of Kankakee County riverfront residences were flooded, proving the vulnerability of construction before current flood plain regulations were in effect. For comparison, the 2008 and 2009 flood was still approximately two feet below the current 100-year base flood elevation (BFE).

In Kankakee County there is a concerted effort to convert the most flood susceptible properties to open space. Efforts include: public purchases of land, planning and development policies by local units of government and stringent floodplain development guidelines.

New construction, building additions and careful land uses are required to address the floodway and floodplain concerns which were established over time. Some of the existing nonconforming structures, which are mostly residential, continue to be a concern.

Lifestyle Attraction

Many features of the river attract people to the Kankakee River area. People enjoy lifestyles along the waterfront setting.

Scenic Beauty

The appreciation for natural waterways is a characteristic of human nature. In the Midwest, where open prairie is prevalent, the beauty of a wooded shoreline adds dimension to the scenic experience. Seasonal transitions provide the fullness of green foliage in warm months; tremendous colors abound in autumn followed by winter's open views expanding the panorama of the river. With the curving pattern of the river, many amazing vistas upstream, downstream or to the opposite banks are prevalent. Scenic roadways along the sides of the river provide enjoyable drives throughout the year. Also during the winter foliage drops to reveal fresh views of the river.



Recreational Use

The Kankakee and Iroquois Rivers offer unlimited potential for recreational activities and tourism. Although only minimally tapped, recreation has the

potential for sustainable and successful economic and community development. Area officials recognize the potential for an aggressive tourism campaign that will encourage redeveloped riverfronts, to support local groups to promote river and nature attractions, and for modifying public policy to capitalize on the economic potential the river basin offers.

With over 8 million people in northeastern Illinois and northwestern Indiana, a considerable market exists. Kankakee County is ideally positioned to attract a great many people to our area which will benefit the area's overall economy.

Fishing

Fishing on the Kankakee River is a huge attraction. If marketed effectively, fishing can be a key component of tourism and economic development strategies.



Waterfront Parks/Public-Owned Lands

In evaluating the floodplain along the Kankakee and Iroquois Rivers, it has been speculated that approximately 60% of the total land is in park and open space use. This is a clear indication that the preservation and enhancement of the river system have been key components of the area's public policy. The long-term benefits of perpetual open spaces include flood management, the preservation of natural areas and wildlife refuges, water quality, and increased tourism and recreation.

Ample Public Access

With the amount of public open spaces along the Kankakee River, public access to the river is abundant. This enables the area to offer a wide range of recreational activities and to provide residents and tourists opportunities to enjoy the natural environment.

Six Mile Pool: True Boat-able Access

The central zone of the Kankakee River provides the most "boat-able" areas as a result of the dam located downstream of the Six Mile Pool in Kankakee.

Strong Riverfront Property Values

Land and property values along the river typically have higher value than nearby properties due to peoples' desires to locate on a natural waterway, and these properties tend to hold their value due to a relatively limited supply in relation to the demand.

Redevelopment Opportunities

In evaluating the existing land use along the main stems of the Kankakee and Iroquois Rivers, three dominant uses emerge: agriculture, public open spaces and residential development. In the river communities, large areas of river frontage, if not reserved for park and open space, were developed many years

ago into residential developments. As communities have reevaluated development policies, great opportunities have emerged to refocus attention on river frontage development and maximizing the value.

Agriculture: Irrigation & Drainage Resource

As far back as Kankakee County's earliest settlers, the river system has been effectively utilized to irrigate crops and drain farm fields. Today, little has changed. The river system remains vital to the success of the agricultural industry.

Business and Industry Opportunities

Predictable, affordable, and ample supplies of water provide our current industries with a necessary valuable resource. As will likely be seen in the future, "water wars", predicted in the western U.S. and areas dependent upon underground aquifers for water, will become critical due to high demand. The Kankakee County water supply stands as a major strength to attract water-dependent industries and businesses.

Kankakee County is currently incorporating strategies into its economic development plan by identifying bio-tech, chemical, and food processing industries as key business candidates. All require dependable and high volume water supplies.

Job Development Potential

It is suggested that the river system provides great potential to drive economic development. This undoubtedly translates into job creation in the sectors of manufacturing, tourism, and services.

Name Recognition: "Kankakee"

The name association of Kankakee County with the Kankakee River is inherent. Future marketing and economic development strategies for the Chicago market will translate the importance of the Kankakee River.

River Ties Communities Together

The interdependence of the area's communities is strengthened by their common needs for the uses of the river. By emphasizing community interdependence, Kankakee County will be able to extend the relationship to Indiana and Will County.

Variety of Existing River Activities

Kankakee County has a wide range of activities that rely on the river and its natural features. Activities include many attractions at the Kankakee River State Park, at community festivals, at fishing derbies, at boat races, and at scenic attractions.

In the short time the area's Riverfront Trail has been in existence, it has attracted various events including bike tours, river walks and nature tours. The success of the Riverfront Trail fortifies the premise that a well-thought-out and organized strategy to utilize the river is critical to a more comprehensive regional economic development strategy.

Weaknesses

Lack of Local, State and Federal Support and Lack of Awareness of Initiatives to Solve Problems

At the local level, there is a general lack of awareness and limited consideration for river-related issues, including environmental, economic, and community development. At the federal level, there is a greater awareness of the environmental conditions; however, there is a lack of support to provide funding to mitigate the causes that are degrading the river and its natural environments.

At the state level, officials are also aware and concerned about the negative impacts of silt and sedimentation on the natural environment. During the early 2000's, the Illinois Department of Natural Resources supported financial efforts to reduce sedimentation and to purchase land in Kankakee floodplains. Today, given the state's financial situation and changing priorities, little state aid is available to continue sustainable projects to combat river problems.

General Apathy / Public Awareness

There is a general perception throughout the county that residents lack a sense of urgency when it comes to issues related to the Kankakee River system and impending consequences of unmanaged silt and sedimentation. Issues relating to the river system are secondary in people's minds, while water supply is plentiful and not interrupted, floods are not severe, property damage is minimal, and everyday life is not noticeably impacted.

To successfully implement an overall strategy to improve river conditions and to maximize the usefulness of the river in community and economic development, the Kankakee County citizenry must become more engaged. Through more concerted public education efforts, residents will become more aware of river-related issues and will be able to better understand the needed support to obtain a unified local, state, and federal strategy.

Under-Utilized Commercial Development

Historically the river had high importance in the commercial settlement and development along the Kankakee River. The opposite has occurred over the last century. This resulted in essentially "turning our backs" to the river. Private, residential development supplanted the public's use and access to the riverfront. Little in the way of commercial activity has occurred along riverfront property in decades.

Recent development of the recreational Riverfront Trail has positively impacted the region, stimulating new and progressive ideas for maximizing use of the river. Little progress has been made to further stimulate the commercial potential of the river.

Very few restaurants are located on the river. No hotel rooms overlook the river vista. A successful economic and community development strategy needs to combine and embrace a mixture of public and commercial uses.

Lack of Economic Impact Studies of the River

To cultivate a community coalition to advance river initiatives and economic development, a compelling story about the importance of the river must be developed. One way of accomplishing this is to show the community the vital connection of the river to the local economy. No recent effort has been initiated.

A beginning would include an evaluation of the annual tourism dollars directly associated with river-related activities. It would evaluate property values along the river, and it would project manufacturing jobs for industries heavily dependent upon water systems.

A study of this breadth would be invaluable. The results of a report could serve as a vital reference to plan future strategies and public policy.

Effective Tourism Promotion

Overall, tourism promotion related to the Kankakee River is weak. More should be done to market the potential of the river and associated activities that attract Chicagoland tourists. A greater emphasis is needed to cross-market and regionally coordinate events. Promotions and events are needed to develop regional outdoor shows highlighting the area.

Lack of River Issue Cohesiveness

Fragmentation exists among the many jurisdictions associated with the river and riverfront properties. Federal-to-state-to-local governments need to collaborate efforts for long-range planning.

River Crossings

Bridges crossing the Kankakee River are primarily located within the City of Kankakee: Court Street Bridge, Station Street Bridge, Washington Street Bridge, CN Railroad Bridge, Schuyler Avenue Bridge, and the I-57 Bridge. Only one other river crossing is located in the western portion of Kankakee County: Warner Bridge at 7000 West Road. One other river crossing is located in the southern portion of Kankakee County: Sugar Island Bridge crosses the Iroquois River on the far south edge of the county. A distance of approximately 10 miles separates Warner Bridge from Court Street Bridge, and approximately the same separates the I-57 Bridge from the Sugar Island Bridge. Two other river crossings are located in the eastern portion of Kankakee County: the Route 17

Bridge near Sun River Terrace and the Momence Bridge where Route 1 crosses the Kankakee River. Finally, the easternmost crossing is the State Line Bridge at the Indiana state line which has been closed for a number of years due to its condition.

Lack of Residential Land Use Planning

A concentrated effort has not been made in regard to land use planning relative to the Kankakee or Iroquois River. Existing plans and development lack unique features. Local governments must recognize the importance of river development (and redevelopment), be creative, and plan accordingly.



Lack of Subdivision/Development Codes Related to the River

Although floodplain regulations are in force throughout the County, specific public policy for future river and floodplain development is lacking in most area communities. Current subdivision ordinances need to be revised to include consideration for the preservation and public use of river frontage and floodplains.

Opportunities

Communities Need to Develop Plans

With a goal of providing more public access to the riverfront, a rallying effort would be welcome in the development of new plans for riverfront usage. There are ideas which could improve the quality of life for area residents as well as provide economic developmental opportunities.

Community Resource Planning Interests

Municipal governments have been the leaders for community planning, and they must continue to re-plan and develop the riverfront.

Creative Community Development Ideas

Other examples of riverfront development throughout the U.S. offer proactive suggestions of what can be done to improve environments. Kankakee County needs to be receptive, positioned and ready to take steps for riverfront development.

Riverfront Development

The demand for riverfront residential development has been the emphasis in past decades and still holds significance for the future. A new concentration for

commercial development of restaurants, lodging, meeting and conference centers or other economic purposes will bring improvements to the county. This may include redevelopment of properties not best utilized for waterfront locations. Good planning should insure the right balance with the river.

Strategic Location of Public Works Facilities

The Kankakee County Highway Department offices and storage building are located on the south side of the river between Schuyler and East Avenues in Kankakee. The Kankakee Valley Park District has a storage facility at Legion Park south of Station Street. The City of Kankakee has a public works facility on the south side of Soldier Creek north of Oak Street. Effective strategic planning should consider other uses of these waterfront properties.

Ample Water Supply to Attract Industries

The capacity and quality of the local water supply system is a major asset for industrial development.

Sand Extraction Resource Potential

The significance of a recent study on sand extraction from the river as well as other studies stresses the need to develop creative solutions to the sand and sedimentation accumulation. It will take further deliberation and discussion to determine solutions for this endeavor. Possibilities for extracting sand on the Illinois side of the state line will require creativity with profit options.

Back Water Lake Opportunity

Under consideration at the east end of the county is the possible construction of a new lake on the north side of the Kankakee River. With its primary function as a location to collect sand sedimentation from Indiana, the back water lake could provide potential recreational uses and also could be considered for a fish hatchery.

Lodge Development Potential

As a tourism draw, Kankakee County could develop overnight and extended stay properties in natural settings.

Two identified locations already exist and should be considered: the Kankakee River State Park area and the Twin Rivers Campground on the south side of Aroma Park. Both have facilities and settings to draw visitors, and Twin Rivers could have ready boating access to the Six Mile Pool.

A lodge could be developed in the eastern zone of the county near other natural sites with excellent fishing and hunting.



Population of 10 Million People Within 1½ Hour Driving Radius

People in the Chicago area often travel several hours to Wisconsin, Michigan and Indiana to reach water resorts and lakes for recreational enjoyment. Kankakee County could promote a much shorter travel distance to provide these experiences. Populations to the west, east and south of Champaign, Illinois are within the visitor market area as well. Other possibilities for tourism development include river area park land and river connections.

Boater/Fisherman Access and Facilities

Along with the popular fishing and boating activities available to the public, public restroom facilities and other amenities are needed within the Six Mile Pool area. Additional public docks near the launches are needed to provide safety and access points as well.

Commercial Riverfront

The City of Kankakee's leadership has reviewed and considered the long-range possibilities for Downtown Kankakee Riverfront Development. Beginning with Frank Lloyd Wright's Bradley House property on the east central area of Kankakee, the north side of the riverfront can be developed at the river's bend as it flows north toward Station Street. Legion Park sits at the corner of the bend, and public land is available for more development. The redevelopment of Kankakee's residential frontage into higher use commercial properties can be a critical aspect of this concept.

River Marinas

As a complement to a future Downtown Kankakee River Walk tourism destination, the development of a new marina on the east side of the Court Street Bridge could provide boaters' access to the River Walk as well as potential restaurants and retail shopping. A marina could provide access to the river for people visiting the River Walk.

KCCVB Support of Riverfront

With the potential for a Kankakee River Walk and Marina, the proposed area could provide an excellent central location for the Kankakee County Convention and Visitors Bureau. As a referential hub, the KCCVB being located in the vicinity of Schuyler Avenue and River Street would be a convenient and highly visible location not far from the Frank Lloyd Wright Bradley House.

Riverfront development has been successfully completed in many locations in Illinois. Comparative reviews with successful redevelopments in other cities should be conducted to guide Kankakee County in its planning.

Shapiro Developmental Center Partnerships

Discussions with state officials are needed to explore future possibilities of shared benefits with the Shapiro Developmental Center where there is substantial property on the south side of the Kankakee River east of Schuyler Avenue. In 2009, Phase 1 of the regional Riverfront Trail was completed with the cooperation of the State of Illinois in regard to Shapiro. The trail along hospital property provides public access along the riverfront for recreational biking, jogging and walking.

**Railroad Bridge Restoration**

The CN Railroad Bridge crossing the river near the dam between Washington and Schuyler Avenues is in obvious disrepair. Dialogue with CN is necessary to determine how the attractive bridge's renovation might contribute to the overall redevelopment.

I-57 Bridge Reconstruction

The bridge crossing the river along Interstate 57 is on the U.S. Department of Transportation's schedule for reconstruction in 2014. As the most frequented road in the county, more people see the Kankakee River from this vantage point than any other. With effective marketing signage and accentuated detailing to the new bridge, travelers could be provided a scenic view of the river's waterscape and information about other river sites of interest.

Threats**Pollution**

The Kankakee River basin is documented as one of the cleanest rivers in Illinois as well as in the Midwest. Nevertheless, threats to the river include runoff chemicals from agricultural application, failed and illegal septic systems, stormwater discharge from urban areas and sewage facility discharge.

Local units of government have passed stormwater management ordinances to address erosion and stormwater runoff. Agriculture is utilizing no-till practices to reduce erosion as well. The Kankakee County Health Department has authority over illegal septic discharge. The Illinois EPA monitors the Kankakee sewer plant. Continued diligence must be a priority.

Urgency

For those involved in river-related issues and those who closely follow the conditions of the river, there is a sense of urgency to take action to remove, reduce, and stop sand and siltation. Nevertheless, the majority of the area's population is unaware of the urgency.

Because of the complexity of the issues and the need for coordinated support from the local, state, and federal entities, there is potential that nothing will be done. On both sides of the Illinois and Indiana border, it is essential that a collaborative partnership be formed to address the sand and sediment issues. Bringing various groups together who have both mutual and opposing objectives is necessary for progress.

Sewage Facility Infiltration

The KRMA wastewater treatment plant serves the communities of Kankakee, Bradley, Bourbonnais, Aroma Park and areas unincorporated in the county. The facility is located along the Kankakee River and Kennedy Drive, and treated effluent is discharged directly into the Kankakee River. When there is a failure, there is potential for discharge of untreated waste. This occurred in 2011!

**Decreases in River Storage Volume**

Many studies conducted over recent decades confirm that the sand and sedimentation accumulation has resulted in decreased depth of the river and subsequent reduced storage volume that has led to more frequent and exaggerated flooding. In recent years, areas that have not experienced flooding are now flood prone.

The Kankakee County Natural Hazards Mitigation Plan (2005) estimates 3,200 structures with a value of \$209M are located in flood prone areas in Kankakee County.

Increases in Drainage Flows

Aqua Illinois records indicate that the flow of storm drainage passing over the dam has increased. Measured high flows have increased from around 30,000 cubic feet per second to approximately 45,000 cubic feet per second according to Aqua Illinois data. With decreases in the river's volume resulting from sand and sedimentation and compounded by increased area drainage volume, possible flooding disasters are quite possible.

Increased Flooding and B.F.E. Height

The current Base Flood Elevation (B.F.E.) suggests concerns for existing areas in Kankakee County along the river, and past studies, as well as logic, suggest the sedimentation of the riverbed results in the reduction of volume of the river that will exacerbate future flooding potential and actually raise the B.F.E.

River Bank Maintenance and Erosion

Undeveloped areas tend to have uncontrolled erosion of river banks, particularly along the Iroquois River, which explains the high degree of sedimentation from that source.

Lack of Planning

An overall assessment of planning efforts by local units of government with river frontage finds little in the way of adequate land planning for future development. Planning efforts addressing economic development, tourism, and recreation are near nonexistent.

Increased Cost of Potable Water

In 2010, the mounting migration of sedimentation on the river's bed forced Aqua Illinois to raise its deep intake pipe by 6 feet. If sedimentation is allowed to accumulate, the necessity to change procedures for collecting water for the community's supply will result in increased costs.

Losses in Property Values

As flood boundaries expand due to the loss of water capacity in the river, property and structures once out of harm's way will be exposed to flooding. In addition, properties in flood prone areas will experience higher flood depths.

Increased frequency of flooding and flood damage pose significant threats to public safety and property values.

Congestion and Safety Issues

Summer weekends are very busy boating seasons within Kankakee's Six Mile Pool. There is a limit to the number of boats which can safely navigate the river, especially with boats traveling at higher speeds. While recreational boating and skiing are to be encouraged, safe operation is a great concern. Noise and speed limits should also be regulated, and there is a need to regulate the larger jet boats that reach high speeds and generate loud noise.

Loss of Aquatic Life

The rolling sedimentation covering the river's bed is not only removing flood capacity, it is covering vital breeding grounds for much of the aquatic life that relies on rocky areas. As the river fills with sedimentation, studies suggest a degradation of the river will result in the loss of aquatic life.



TOURISM & RECREATION

Strengths	Weaknesses
Kankakee Riverfront Trail Scenic Landscapes / Scenic Routes Clean River Quality Fishing / Hunting Boating, Canoeing, Kayaking Camping Bird Watching / Flora Abundance of Parks and Open Space Public River Access 10 Million People in NE Ill. and NW Ind. Exercise Areas Along River Established, Successful River Events Golf Courses on River Historic Tourism, Indian Lore Perry Farm Park and Indian Caves Lack of Density: Frontier Character Remains Image Opportunity for Kankakee County	Sedimentation Threatens Recreational Opportunities and Access Lack of Restaurants and Destination Choices Lack of Lodging On or Near River Lack of Public Facilities on River Lack of Available Property for Development in Six Mile Pool Area Lack of Promotion and Advertising Lack of Local Education About River Lack of Unified Promotional Plan for River Lack of Events on River Lack of Recognition of Mazonia Fish & Wildlife Lack of Bait Shops in Area Lack of Access to Iroquois River Lack of Convention Capacity Lack of Accommodations for Larger Activities / Events Lack of Grant Researchers, Writers
Opportunities	Threats
Advertise River Activities in Neighboring Counties I-57 River Bridge Reconstruction Trail Ways and Expansion Cross-Promotion Planning and Marketing Promotion Within the County Chicago Area Market Stay Vacations Expanding Camping Opportunities Character of the River Area Developing Lodges, Conference Centers Market to Multiple Age Groups Lake Development East Side of County Fish, Wildlife and Open Space Initiatives	Lack of Unity Among Communities Hesitance for Spending Money Lack of Volunteerism Ecology Threats to River, Loss of Fishing Complications of Multiple Governmental Jurisdictions Elective Support and Long-Term Vision Lack of Service Industries Kankakee County Convention and Visitors Bureau Resources Funding Pollution by Agriculture Chemicals, Municipal Services Flooding

Strengths

Kankakee Riverfront Trail

The newly constructed 13 mile riverfront trail follows the river from the southern Kankakee boundary to west of Bourbonnais. It provides excellent scenic paved trails for hikers, bikers and other recreations.

Scenic Landscapes / Scenic Routes

From end to end in Kankakee County, the river's natural scenery provides delight to both residents and visitors. Shoreline access at local and state parks along with boat access provide public opportunity for the appreciation of Kankakee County. Illinois Routes 102 and 113 and Sandbar Road, Eagle Island Road and River Road all run parallel to both sides of the river and provide continuous scenic driving. The roadways provide striking river vistas to touring automobile and bicycle riders throughout the year.



Clean River

The cleanliness of the Kankakee River has been well documented not just as a potable water supply but also for its recreational purity.

Quality Fishing/Hunting

There is abundance as well as a variety of recreational fishing available to the public. Via boat, shoreline or waders, fishermen have long enjoyed this sport individually or within derby formats.

Designated hunting areas are located adjacent to the Kankakee River State Park. The Momence wetland hunting area in the eastern portion of the county needs to be promoted better, and plans should be made to designate and promote new hunting locations in the county.

Boating, Canoeing, Kayaking

Seasonal speed boating and skiing are prevalent in the "Six Mile Pool" from the dam in downtown Kankakee upstream to Aroma Park and further south on the Iroquois River. Public launches are available in this area at the Beckman Park Marina, River Road Park, Aroma Park, Bird Park, the old River Island campground and at the Momence Park District. Private boat clubs include both the Kankakee and Aroma Park Boat Clubs.

Larger boats also utilize the western and eastern portions of the Kankakee River as well as the southern area of the county on the Iroquois River on a more limited basis though with greater access when river levels rise during rainy periods.

Small boating is frequent at all areas of the river throughout the more seasonal months particularly for canoes and kayaks. Reed's Canoe Trips operates a well-known canoe experience with drop off and pick up services.

Camping

Public campgrounds are available at the Kankakee State Park and at Riggs Grove in Aroma Park for the private outdoorsman for campers and tents. Group and organized camping is available at Camp Shaw-Waw-Nah-See near the Kankakee State Park and at Twin Rivers Campground in Aroma Park.

Bird Watching / Flora

Naturalists can enjoy the extensive aviary and plant species along the Kankakee River banks and within its nearby parks.

Abundance of Parks and Open Space

Anchored by the massive Kankakee River State Park within the western portion of Kankakee County, additional parks are sprinkled throughout Bourbonnais, Bradley, Kankakee, Aroma Park and Momence and are operated and maintained by local park districts. The Kankakee County Forest Preserve District also has adjacent open space within Kankakee and Aroma Park.



Public River Access

With the existence of quality park land along the river for public access and boat launches, the river area provides enjoyment for many activities.

10 Million People in NE Illinois and NW Indiana

Within a 1½ hour driving radius of Kankakee County reside approximately 10 million people. Many of those people travel hours to Wisconsin or Michigan for recreational vacations. Kankakee County tourism should capitalize on this audience's appetite for recreation.

Exercise Areas Along River

With the recent completion of a new phase of the Riverfront Trail, joggers, walkers, skaters and cyclists can continue to enjoy activities with spectacular views. Eventually, the Riverfront Trail will connect River Road Park to trails at the Kankakee River State Park, a 13 mile distance with many trail exits along its way.

Established, Successful River Events

The area's River Regatta and Power Boat Races each Labor Day Weekend highlight an array of river-based events during the summer which also includes

the annual Fishing Derby and the Twin Rivers Festival. In addition, the boat clubs sponsor a number of music and food-based activities throughout the year.

Golf Courses on River

The Kankakee Country Club, Oak Springs Golf Course, Kankakee Elks Club, South Shore Golf Course and Shamrock Golf Course are located along the river and contribute even more recreational activity experience related to the Kankakee River.

Historic Tourism, Indian Lore

A wealth of history has been documented on the settlements of Bourbonnais, Momence and Kankakee in the early 1800's. The Pottawatomie tribes who occupied the area and historical records share their story giving even more interesting depth to local history.



Perry Farm Park and Indian Caves

The Bourbonnais Park District has done an excellent job of preserving and developing the Perry Farm Park including its trail system along the river. An added feature of the park is affectionately known as the Indian Caves, which, in reality are carved out ravines that carry rainwater to the river and provide scenic exploration.

Lack of Density: Frontier Character Remains

Outside of the core city areas, the great majority of river frontage remains natural and undeveloped. The attraction of reaching the edge of the frontier once drew Chicagoland vacationers to the area. A similar strategy needs to be resurrected as an attraction for tourism.

Image Opportunity for Kankakee County

Advertising strategies need to be developed to attract visitors.

Weaknesses

Sedimentation Threatens Recreational Opportunities and Access

Boats often run aground on hidden sandbars in the river which grow or morph annually. The depth of the river has decreased over many years as a result of the sedimentation which creates havoc with watercraft. Some species of fish are threatened by sedimentation as well.

Lack of Restaurants and Destination Choices

Within the Six Mile Pool area, only one restaurant (Ryan's Pier) is located on the river. It is often difficult to reach it by boat. Two other restaurants (On the Rox in Kankakee and River Bend east on Route 17) have views of the River.

Lack of Lodging On or Near River

Other than campgrounds, no overnight lodging for visitors and vacationers exists with views of the Kankakee River.

Lack of Public Facilities on River

Restroom facilities, in particular, are sparsely available in most areas of the river. Unfortunately, visitors along the river do not have ready access to these facilities.

Lack of Available Property for Development in Six Mile Pool Area

Although the residential areas outside of the city core have not been developed extensively, little available real estate exists in most areas along the Six Mile Pool. In particular, single family residences are predominant along a good portion of this river frontage, restricting much of it to private usage.

Lack of Promotion and Advertising

For better understanding of the assets of the Kankakee River, more marketing and advertising strategies need to be developed and executed.

Lack of Local Education About the River

Area residents within Kankakee County also, are often not fully aware of the many assets offered along the river in relation to tourism.

Lack of Unified Promotional Plan for River

Given the individuality of public events, there exists a tendency for each event to fend for itself. Collaboration and coordination among organizers is needed to market events. Competition among events often results in conflicts of interest. Aspects of cross-promotion can mutually benefit each event or business by offering strategic multiple options to visitors and consumers.

Lack of Events on River

The area's cultural/tourist friendly events have remained unchanged over many years to a great degree with the exception of some new downtown Kankakee events.

Lack of Recognition of Mazonia Fish & Wildlife

Along the far west portion of Kankakee County and extending into Grundy County lies another excellent recreational area known as Mazonia, a fishing and wildlife preserve which could be cross-promoted to enhance the draw for the region.

Lack of Bait Shops in Area

After the close of a long-standing downtown Kankakee bait shop, there are only two remaining bait shops near the river. One is in Momence, and the other is in Altorf, near the Kankakee State Park.

Lack of Access to Iroquois River

Lands bordering the Iroquois River in the southern portion of Kankakee County are basically undeveloped and are not publically accessible.

Lack of Convention Capacity

Although not a river-related topic specifically, there is a need for a larger conference/convention venue.

Lack of Accommodations for Larger Activities/Events

Similar to the lack of conference/convention space, sports groups and other activities attracted to the area need larger spaces to accommodate their events.

Lack of Grant Researchers, Writers

The ability to obtain grants is hindered by the lack of reasonably priced local grant writers along with the expertise for grant research.

Opportunities

Advertise River Activities in Neighboring Counties

With thousands of vehicles passing through Kankakee County via Interstate 57 and on Route 17 along the east and west corridors, prominent and strategic advertising would offer first-hand visibility of Kankakee County's wonderful river and tourism activities.

I-57 River Bridge Reconstruction

With the anticipated 2014 reconstruction of the Interstate 57 Bridge that crosses the river, advertising that identifies the river attractions to the many travelers passing through will promote the river identity to thousands daily.

Trail Ways Expansion

Continued development of the 13 mile Riverfront Trail will serve to connect the park systems and provide an attraction to cyclists, joggers and walkers.

Cross-Promotion Planning and Marketing

To provide additional interest about the river, advertising of multiple, coinciding events and attractions as well as the promotion of other activities and businesses will benefit all.



Promotion Within the County

A concerted effort to promote the Kankakee River recreational opportunities within the county is necessary. Strategic plans are needed to retain tourism dollars as well. As area residents become more aware of Kankakee County resources, they will be more committed to saving our natural resources. Strategies advocating the river should use all forms of media: cable access, radio public service time, events columns in area newspapers, as well as press releases to all papers. There needs to be wider distribution of promotional literature particularly within the county to include; places of business, village halls, public libraries, and at destinations being promoted in the literature. Promotional literature needs to be distributed at every county event.

Promotion to surrounding counties should be enhanced through the following methods:

There are regional websites promoting outdoor events such as fishing, hunting, paddling, boating, hiking, camping, scuba diving, horseback riding, geocaching, bird watching, biking and more hunting. Cross-promotion of these activities will help.

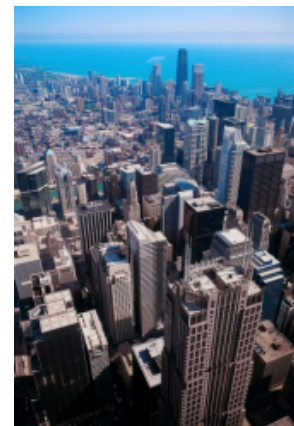
Magazines like Outdoor Notebook, ASO Outdoors and Heartland Outdoors are distributed free to the patrons of bait/tackle shops.

Press releases about local events need to be sent to print, radio and TV media to nearby major markets like Chicago, Joliet, Champaign, Gary and Hammond.

Radio shows like Outdoor Notebook on WJOL, Fishing Line and Outdoor Show, Chauncey's Great Outdoors on ESPN radio and others can promote the outdoors events held here.

Chicago Area Market

The 10 million people within 1½ hours of Kankakee County need to be aware of our attractions. Existing and expanded tourism and entertainment facilities and activities will require advertising and promotion.

**Stay Vacations**

Kankakee County could be developed into a tourist destination for vacations. Rather than traveling three-to-five hours to Wisconsin or Michigan, Chicagoland residents can arrange shorter, unique trips to Kankakee County.

Expanding Camping Opportunities

With an increased possibility of environmental tourism, expanded campground facilities are needed with facilities and activities.

Character of the River Area

The Kankakee River is a rarity for its combination of beauty, history, cleanliness, and recreational variety. To capitalize on such assets requires creativity, organization and effort.

**Developing Lodges, Conference Centers**

As a tourism draw, Kankakee County could one day be a destination for overnight and extended stays in natural settings. Two locations already exist which could be considered in the near future for events, the Kankakee River State Park area and Twin Rivers Campground on the south side of Aroma Park. Both have natural settings to draw visitors, and Twin Rivers could have ready boating access to the Six Mile Pool. In addition, a lodge could be located in the eastern zone of the county near other natural sites with excellent fishing and hunting. Further possibilities exist if there is the possibility of a larger scale conference center in a natural setting.

Market to Multiple Age Groups

The interests of local and regional youth can be piqued through river/prairie-themed programs and events. Following are a few possibilities:

Little Tykes' Day

This program features kids on tricycles, big wheels or bikes with training wheels on trail ways held in conjunction with the Bourbonnais Township Park District kite event or another Bourbonnais Township Park District event. By hosting it at Perry Farm, families could then visit the Farm and the Exploration Station. Local restaurants may want to help sponsor these types of events in exchange for the privilege of providing coupons for their places of business.

Outdoor Crafts Day

Workshops on building bird houses and similar crafts for use at home or at public locations may attract visitors.

Lake Development East Side of County

A backwater lake may warrant consideration as a sedimentation collector and could be developed for larger recreational use.

Fish, Wildlife and Open Space Initiatives

An expanded understanding of the natural features of Kankakee County will foster greater appreciation for the river. The following are possible events:

Fishing Events - Catfish, Carp and Gar Derbies

A Catfish/Carp Derby is being planned for Memorial Day weekend in cooperation with the

Momence Park District. A Carp Fishing Derby in collaboration with the Carp Anglers Group and a Gar Derby with the Gar Anglers Sportsman's Society may be possibilities.

Canoe-Bike-Walk-a-thon for Charity

This event could raise funds for river restoration or any other charity deemed worthy. The event should be coordinated with local groups involved in such activities and benefit local businesses such as Reed's Canoe Trips. It may be possible to have local businesses act as Corporate Sponsors. The canoe event could start at the Bird Park launch and continue to Warner Bridge.

Sportsmen's Days

A weekend event could draw sportsmen. It would involve camping, fishing, hunting, hiking, paddling, geocaching and horseback riding. Other events such as an antique shop tour or art gallery/museum tour would increase participation.

Klondike Days or Kankakee County / Winter Carnival/Festival

Events like snow fort building, six legged skiing on 2x4's and other similar activities may be popular. Cross country skiing in BTPD and the State Park and an ice fishing derby at Mazonia would be possible. Winter Wonderland hikes at the Kankakee River State Park and at the Kankakee County Forest Preserves are other possibilities. Skating at the KVPD Ice Arena and hockey activities would add to the draw. Area bowling alleys could have open bowling or tournaments as well. Local restaurants could host dinner/dessert tour specials. Local art galleries, museums, antique shops, etc. could have events and area colleges could host open houses or tours. A play by local theatre group's or concerts by local musicians could be other attractions.

Wildlife Appreciation

Kankakee County has unique wildlife populations to be promoted. In the Momence area there are three species of squirrels: gray, fox and red. In the eastern part of the County there are rare red-headed woodpeckers often mentioned in birding books. Bald Eagle sightings along the river are frequent.

Iroquois County State Wildlife Area

St. Anne is the gateway to the Iroquois County State Wildlife area. This area brings in hunters during the season as well as tourists the rest of the year. The Kankakee Sands and Nature Conservancy properties are also near St. Anne and can be cross-promoted.

Momence Wetlands

The Momence Wetlands area can attract hunters, fishermen, paddlers, birders and hikers to benefit tourism in Momence. The old River Island campground area needs improvement by the IDNR, and it could be legally transferred to local governments for improvement. There is a boat launch, a pond, an office and camping with electric hookups on site.

Boating Access

Boat ramps on government property can be promoted on websites/magazines devoted to paddling and boating.

Threats

Lack of Unity Among Communities

Territoriality exists among communities everywhere including Kankakee County. Communication has recently improved in Kankakee County and it benefits tourism and recreational development.

Hesitance for Spending Money

One of the major obstacles to the development of tourism and recreational initiatives lies with the caution of investors in dining and recreational businesses.

Lack of Volunteerism

Typically, festivals and activities are organized by volunteers. Cultivation of volunteers is essential.

Ecology Threats to River, Loss of Fishing

Sedimentation and pollution contribute to overall harm to the river's quality. Subsequent loss of fish species is a substantial threat.

Complications of Multiple Governmental Jurisdictions

In order to make progress in programs associated with river improvements, governmental collaboration needs to be improved.

Elective Support and Long-Term Vision

Elected officials are necessary to support tourism in Kankakee County.

Lack of Service Industries

In order for Kankakee County to advance with tourism in the service industry, the workforce needs further training and education on the operation of service businesses.

Kankakee County Convention and Visitors Bureau Resources

Financial support and more strategic planning for the KCCVB may need to be extended into other communities to expand its role in the county.

Funding

Governmental and private resources require cultivation.

Pollution by Agriculture Chemicals, Municipal Services

Various forms of pollution are of concern to the Kankakee River and have long-term detrimental effects. Preservation of the river's quality needs greater emphasis.

Flooding

With decreased volume in the river basin resulting from sedimentation, flooding potential is accentuated. Flooding will become more destructive as sedimentation buildup increases.

IMPLEMENTATION

Introduction

This chapter outlines the priorities set forth in this report and includes action statements. It serves as a quick reference tool to locate the major actions referenced herein. Formal ratification of this document by local units of government and by public support is the first step in the implementation process. This document sets forth an agreed-upon consensus approach for actions for the short-, medium-, and long-term vitality for the River Basin. The report and the culminating recommendations are a product of concentrated efforts on the part of the River Roundtable participants. Without substantial action to implement unified strategies, the Roundtable's efforts to enhance river opportunities and confront river challenges cannot succeed.

Combined Action Plan

The Combined Action Plan provides a conceptual series of goals from the River Roundtable Committee in the beginning of 2010 and leads into the future based upon successes achieved.

Short-Term Actions provide a brief record of the milestones achieved by the River Roundtable from its inception to the development of this report. In addition to this document, which provides a comprehensive collection of past studies and data, an informational brochure has been developed as a reference and for distribution to the public. It is entitled the Kankakee River Awareness Program. The brochure refers to a new website (www.gokankakeeriver.org) which includes the contents of the full report as well as past studies available for the first time in one document. Also, to be made available on the website and on compact disc (CD) will be a video presentation depicting the sand and sedimentation issues confronting the vitality of the Kankakee River.

Medium-Term Actions are to be launched with an Open Public Forum to be held in June 2011. This aspect will concentrate on providing information to the public and to government officials on information about the issues. Ongoing dialogue and future presentations will be integral to establishing unified understanding and appreciation of the topic. Consequently, further dialogue will be needed to develop solutions along with implementation, strategies, cost estimates and potential funding sources.

Long-Term Actions do not have firm timelines. When reasonable solutions and the related funding coincide, the implementation of strategies can be designed. An important aspect of the success of the River Roundtable's efforts will rely on the collaboration and persistence of all parties.

Sub-Group Action Plans

Beyond the aspects of resolving sand and sedimentation issues in the Kankakee River Basin lay possibilities for improvements and advancements to Kankakee County's future. The outlines provided in our three specified categories provide an array of possible studies, issues and solutions to be considered.

Environmental Sustainability and Agriculture topics represent major considerations for the sand and sedimentation concerns, but they also explore the necessary study of conservation, open space, habitat and flood control issues.

The Community and Economic Development section addresses studies and comprehensive plans which need to be subdivided into subtopics for simplicity, but they also should provide clear opportunities for river issue cohesiveness throughout the Kankakee River Valley.

Tourism and Recreation in Kankakee County has great potential for economic and quality of life opportunities. The wealth of high quality natural resources will greatly enhance tourism and recreational opportunities. Strategies and ideas for future development must tie in to comprehensive planning with sub-groups.

It is the collaboration of the various sub-group agendas, ideas and solutions that will foster ongoing success. For emphasis, the General Goals listed at the beginning of the River Roundtable Report are reiterated in the following paragraphs.

General Goals

Environmental Sustainability & Agriculture

- Stabilize water and land resources; improve water quality; preserve the high quality natural resources; restore and preserve native animals and restore degraded habitats; protect prime farmland.

Economic and Community Development

- Strengthen the County's economic base by creating and promoting identified opportunities; attracting land uses, encouraging urban infill and redevelopment and promoting more compatible land uses by integrating the river and the community's physical needs, resources and civic character.

Tourism & Recreation

- Strengthen and enhance tourism and recreational opportunities throughout the Kankakee River Basin.

Public Education & Outreach

- Improve public education; reach out to vested-interest regional partners and organizations; Act as the Kankakee River Advocate with local, state, and federal officials to advance river initiatives. Serve as the central clearinghouse to advance river priorities

The Balancing Policy

- Ensure policies and actions are balanced and that they can co-exist in harmony with the varying interests of Kankakee County, including specifically, the agriculture industry. Identify public works needed to support the initiatives of Kankakee County. As all possible, cultivate unified coalitions of support for goals, projects, and actions.

The Future Function of the River Roundtable

The diverse interests, grass-roots group referred to as the “River Roundtable” committee is an informal assembly of Kankakee County citizens representing various stakeholders interested in enhancing and restoring the Kankakee River, maximizing its use as a major tourism and recreational attraction, and serving to advocate the river as a major community and economic development asset. The River Roundtable, working with a range of implementation partners, will be the lead facilitator to articulate and coordinate efforts and implement this report’s recommendations.

The role of the River Roundtable is to oversee the implementation of this report’s recommendations and goals. Its investment in preparing this document sets the foundation for taking ownership of the objectives and establishes a forum for monitoring the execution of its goals. It is recognized that the River Roundtable lacks governmental authority, but with growing support for the many topics identified as implementation actions, the members of the River Roundtable are to act as facilitators to bring various governmental and non-governmental groups together for open dialogue for determining the proper steps in resolving century-old challenges.

The success of the River Roundtable Report will take time to measure. It is designed to educate the public in order to foster a coalition of stakeholders to provide data and support to appropriate authorities for developing solutions and consequential funding. Within these Appendices is the outline for various groups to be targeted for governmental and non-governmental dialogue and collaboration. Ultimately, the Army Corps of Engineers will have regional responsibilities for restoration efforts; however, through a county-wide approach the necessary steps will need to begin with the Kankakee County Board’s support and expand from there. Implementation will be continuous and initiatives will arise as they evolve. The River Roundtable will continue as the convener for this ongoing effort with an emphasis on persistence.

ACTION PLAN

Short-term Actions (Jan. 2010 to May 2011)

1. Communicate with Indiana counterparts on mutual interests and strategies
2. Initiate contact with Army Corps and other, appropriate federal agencies as well as the IL & IN DNR for background and guidance
3. Re-establish CMAP Reps for consultation
4. Finalize River Roundtable Report
5. Develop Informational Video
6. Develop Strategies for a Unified Public Information Campaign
7. Develop Promotional Series
8. Develop Media Plan, Website, Brochure
9. Develop Strategies for Support and Initiate Contact with State and Federal Legislatures
10. Research and Identify Possible Funding Sources

Mid-term Actions (June 2011 to 2013)

1. Release Video & PR Data
2. Conduct Public Open Forum (June 7, 2011)
3. Develop Unified Comprehensive Plan for Sand and Sedimentation (high priority)
4. Obtain Support of State and Federal Legislatures
5. Request WRDA Funding (2 Yr. Cycle) and Cultivate and Investigate Other Funding Sources
6. Develop and Advertise Disaster Relief Plan
7. Develop Economic Development and Tourism Comprehensive Plan
8. Cultivate State and Federal Legislators' Awareness of Issues, and Focus on Funding Approaches

Long-term Actions (2013 and beyond)

1. Cultivate Proposals for Sand and Sedimentation Solutions
2. Obtain Initial Funding for Long-Term Balanced Corrective and Restoration Projects
3. Implement the Development of Downtown Kankakee Riverwalk
4. Implement the Development of Economic Development / Tourism Comprehensive Plan
5. Maintain and Facilitate Indiana Dialogue on Mutual Benefits
6. Continuously Explore and Assess Proposals for Solutions
7. Continue Requests for WRDA Funding on 2 Year Cycles as well as Other Funding Sources

ENVIRONMENTAL SUSTAINABILITY & AGRICULTURE ACTION PLAN

- 1. PREPARE INFORMATIONAL AND PROMOTIONAL MATERIALS**
 - A. Develop Informational Brochure
 - B. Prepare Video Presentation (15 to 30 minute length)
 - C. Prepare Document of River Roundtable Report
 - D. Develop Web Site (www.gokankakeeriver.org)
- 2. PRESENT INFORMATIONAL, SCIENTIFIC AND PROMOTIONAL MATERIALS TO LEGISLATORS AND LOCAL OFFICIALS**
- 3. PRESENT INFORMATIONAL AND PROMOTIONAL MATERIALS TO THE PUBLIC**
- 4. ARRANGE FORMAL DIALOGUE WITH ARMY CORPS OF ENGINEERS, OTHER APPROPRIATE FEDERAL AGENCIES, ILLINOIS & INDIANA DEPARTMENTS OF NATURAL RESOURCES, LEGISLATORS AND LOCAL OFFICIALS**
- 5. DEVELOP UNIFIED STRATEGY FOR SAND AND SEDIMENTATION ISSUES**
 - A. DEVELOP A DESCRIPTION OF REASONS FOR SAND AND SEDIMENTATION IN THE RIVER FROM NATURAL AND MAN-MADE CAUSES FOR THE KANKAKEE, IROQUOIS, AND YELLOW RIVERS AND THEIR TRIBUTARIES
 - B. LIST ALTERNATIVE SOLUTIONS TO SAND AND SEDIMENTATION PROBLEMS
 1. Back water lake concept in eastern Kankakee County
 2. Buffer zones
 3. Tributary and river bank stabilization
 4. Runoff control
 5. Sand collection processes
 6. In-stream control solutions
 7. De-channelization of Kankakee and Yellow Rivers and tributaries
 8. Restoration of Kankakee River Basin and Wetlands
 9. Other
 - C. DEVELOP UNIFIED SHORT-TERM AND LONG-RANGE SOLUTIONS AND STRATEGIES
 1. Establish dialogue with Indiana organizations
 2. Establish dialogue with Iroquois, Grundy, and Will County officials
 3. Establish dialogue with Army Corps of Engineers, Illinois and Indiana Departments of Natural Resources, and U.S. Fish and Wildlife Agency

- D. PROPOSE OTHER ENVIRONMENTAL IMPROVEMENTS
 - 1. Strengthen sound conservation practices in agriculture
 - 2. Strengthen non-point pollution practices
 - 3. Strengthen urban land use ordinances and flood plain usages
 - 4. Establish more land set aside for natural areas, open spaces, and conservation easements

- 6. **OBTAIN GOVERNMENTAL SUPPORT**
 - A. KANKAKEE COUNTY OFFICIALS
 - B. AREA LEGISLATORS (State and Federal)
 - C. IROQUOIS COUNTY OFFICIALS
 - D. ARMY CORPS OF ENGINEERS
 - E. DEPARTMENT OF NATURAL RESOURCES (States of IL and IN and Federal)
 - F. US FISH AND WILDLIFE SERVICE
 - G. LOCAL PARK DISTRICTS, MOMENCE CONSERVANCY DISTRICT, AND FOREST PRESERVE DISTRICT

- 7. **REQUEST FUNDING FOR A COMPREHENSIVE SHORT-TERM AND LONG-RANGE PLAN FOR SAND AND SEDIMENTATION SOLUTIONS**
(Include flood disaster relief plan)

- 8. **IMPLEMENTATION OF SAND AND SEDIMENTATION SOLUTIONS**

COMMUNITY AND ECONOMIC DEVELOPMENT ACTION PLAN

1. **DEVELOP A COUNTY-WIDE COMPREHENSIVE PLAN FOR ECONOMIC DEVELOPMENT ALONG THE KANKAKEE AND IROQUOIS RIVERS WITH UNIQUE AND CREATIVE IDEAS**
 - A. Research comparable waterfront development plans for advice and guidance
 - B. Focus on blighted properties and new uses for underutilized or unused existing developed areas which can create jobs and build the area's tax base
 - C. Explore the recreational integration of economic and tourism features
 - D. Emphasize public access and open space

West Zone

Downstream from Dam to the State Park

Includes Riverfront Trail and the Interconnected Park System

Center Zone (The Six Mile Pool)

Includes Downtown Kankakee River Walk

Recreational River Areas, Boating, Launches, Marinas, and Restaurants

Village of Aroma Park

South Zone

Iroquois River

Interface with Iroquois County

East Zone (Aroma Park to Indiana State Line)

Interface with Indiana

Village of Aroma Park development

City of Momence development

2. **ADVOCATE AND SUPPORT THE DOWNTOWN KANKAKEE RIVER WALK AND MARINA**
3. **DEVELOP AN ECONOMIC STUDY ON THE VALUE OF THE RIVER**

Promote the Kankakee River water source as an asset to Kankakee County industrial and employment growth

TOURISM & RECREATION ACTION PLAN

1. **EXPAND THE KANKAKEE COUNTY CONVENTION AND VISITORS BUREAU AS A CENTRALIZED SOURCE OF INFORMATION AND DEVELOP A STRATEGY FOR ACTIVITIES ASSOCIATED WITH THE RIVER**
 - A. Review and list current activity schedule
 - B. Study possibilities to expand activities
2. **DEVELOP A COUNTY-WIDE COMPREHENSIVE PLAN FOR TOURISM AND RECREATION**

Prepare in conjunction with the Economic Development Comprehensive Plan
3. **CONTINUE IMPROVEMENTS TO RIVERFRONT PARKS AND TRAIL SYSTEM**
4. **PROMOTE POSSIBILITIES FOR NEW LODGES, RIVERFRONT RESTAURANTS AND RETAIL**
5. **PROMOTE DEVELOPMENT OF THE DOWNTOWN KANKAKEE RIVER WALK AND MARINA**

Include the Frank Lloyd Wright Bradley House as a feature point on the river
6. **PROVIDE PUBLIC RESTROOMS AT ACCESS AREAS FOR BOATERS AND FISHERMEN**
7. **REVIEW AND REINFORCE RIVER SAFETY REGULATIONS**
 - A. Study speed limits, noise limits and no-wake policies
 - B. Confirm enforcement entities

APPENDICES

KEY GOVERNMENTAL ORGANIZATIONS

Federal

- U.S. Government Elected Officials
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency (USEPA)
- Federal Emergency Management Agency (FEMA)
- U.S. Forest Service
- U.S. Department of Agriculture (USDA)
- U.S. Fish and Wildlife Service

State of Illinois

- Illinois Government Elected Officials
- Illinois Department of Natural Resources (IDNR)
- Illinois Environmental Protection Agency (IEPA)
- Illinois Natural History Survey (INHS)
- Illinois State Geological Survey (ISGS)
- Illinois State Water Survey (ISWS)
- Illinois Department of Agriculture

Kankakee County

- Kankakee County Board
- Municipal Governments
 - City of Momence
 - Village of Sun River Terrace
 - Village of Aroma Park
 - Village of Sammons Point
 - City of Kankakee
 - Village of Bradley
 - Village of Bourbonnais
- Township Governments
- Kankakee County Convention & Visitors Bureau
- Kankakee County Soil & Water Conservation District
- Park Districts
 - (Kankakee Valley, Bradley, Bourbonnais, Bourbonnais Township, Limestone, Momence)
- Kankakee River Valley Forest Preserve District
- Kankakee Community College
- Local drainage districts
- Kankakee River Conservancy District
- Natural Resource Conservation Service (Division of USDA)
- University of Illinois Extension of Kankakee County

Iroquois County (upstream south)
 Iroquois County Board
 City of Watseka
 Village of Iroquois
 Iroquois County Soil & Water Conservation District
State of Indiana (upstream east)
 State government elected officials
 Indiana Department of Environmental Management
 County Governments
 Lake County
 Newton County
 Porter County
 Jasper County
 Starke County
 La Porte County
 Marshall County
 St. Joseph County
 Soil and Water Conservation Districts in each county
 Northwestern Indiana Regional Planning Commission
 Area park districts

Will County (downstream west)
 Will County Board
 City of Wilmington
 Village of Custer Park
 Wilmington Township
 Custer Township
 Lakewood Shores
 Will County Forest Preserve

NON-GOVERNMENTAL ORGANIZATIONS

Kankakee County
 Friends of the Kankakee
 Kankakee River Basin Commission (Illinois)
 Boat clubs
 Sportsmen's clubs
 Northern Illinois Anglers
 POWER (Preserve Our Water, Environment & River)
 Kankakee County Farm Bureau
 Outdoor wildlife organizations
 Kankakee Valley Sail and Power Squadron

State of Indiana

Friends of the Kankakee
Kankakee River Basin Commission (Indiana)
North American Waterfowl Management
Farm bureaus
Iroquois River Conservancy District in Indiana
Isaac Walton League

Will County

Des Plaines Fish and Wildlife Area
Midewin National Tallgrass Prairie
Prairie Parkland Partnership

ADDENDUMS – FEDERAL ACTS

- A. *Emergency Wetlands Resources Act of 1986*
(See Addendum A)

Also, viewed at: <http://www.fws.gov/laws/lawsdigest/emwet.html>

- B. *Executive Order 11990*. E.O. 11990 directs federal agencies to (1) minimize destruction, loss, or degradation of wetlands and (2) preserve and enhance the natural and beneficial values of wetlands when a practical alternative exists
(See Addendum)

Also viewed at: <http://www.epa.gov/owow/wetlands/regs/eo11990.html>

- C. *Clean Water Act*, Sections 401 and 404

See Addendum C 1 - Section 401, also viewed at:

<http://www.wetlands.com/regs/sec401fc.htm>

See Addendum C 2 - Section 404, also viewed at:

<http://www.wetlands.com/regs/sec404fc.htm>

- D. *U.S. Fish and Wildlife Service Grand Kankakee Marsh, National Wildlife Refuge, Environmental Assessment*, August 1999.

See Addendum D; also viewed at:

<http://www.fws.gov/midwest/planning/GrandKankakee/FinalEA/FinalEA.pdf>

The environmental assessment is lengthy; so some excerpts are included to facilitate the understanding, importance and inclusion of wetlands restoration in the narrative or any final documents pertaining to the Kankakee River.

See Addendum D

Also available at:

<http://www.fws.gov/midwest/planning/GrandKankakee/FinalEA/FinalEA.pdf>

ADDENDUM A: Emergency Wetlands Resources Act of 1986

“This Act, Public Law 99-645 (100 Stat. 3582), approved November 10, 1986, authorized the purchase of wetlands from Land and Water Conservation Fund monies, removing a prior prohibition on such acquisitions. It required the Secretary to establish a National Wetlands Priority Conservation Plan, required the States to include wetlands in their Comprehensive Outdoor Recreation Plans, and transferred to the Migratory Bird Conservation Fund amounts equal to the import duties on arms and ammunition.

It extended the Wetlands Loan Act authorization through 1988, and forgave the previous advances under the Act. It also required the Secretary to report to Congress on wetlands loss, including an analysis of the role of federal programs and policies in inducing such losses. In addition, it directed the Secretary, through the Service, to continue the National Wetlands Inventory; to complete by September 30, 1998, mapping of the contiguous United States; to produce, as soon as practicable, maps of Alaska and other noncontiguous portions of the United States; and to produce, by September 30, 1990, and at ten-year intervals thereafter, reports to update and improve in the September 1982 "Status and Trends of Wetlands and Deepwater Habitat in the Conterminous United States, 1950's to 1970's."

Other provisions included: the establishment of entrance fees at National Wildlife Refuges, with fee receipts to be allocated 70 percent into the Migratory Bird Conservation Fund and 30 percent for operations and maintenance at the refuges; an increase in the price of duck stamps from \$7.50 to \$15.00, to be phased in through 1991; and the establishment of the Bayou Sauvage National Wildlife Refuge in Louisiana.

Sec. 315 of the FY 1996 Interior Appropriation Act (P.L. 104-4; 110 Stat. 1321), as amended by P.L. 104-28 (110 Stat. 3009), P.L. 105-18, (111 Stat. 158) and P.L. 105-83 (111 Stat. 1543) established a Demonstration Fee program for entrance and recreational use fees, allowing participating refuges and other agency areas to retain at least 80% of collected fees at the collecting site; this supersedes the 70-30 fee allocation established in the Emergency Wetlands Act.”

<http://www.fws.gov/laws/lawsdigest/emwet.html>

ADDENDUM B: Executive Order No. 11990

Protection of Wetlands (<http://www.epa.gov/owow/wetlands/regs/eo11990.html>)

EXECUTIVE ORDER No. 11990

May 24, 1977, 42 F.R. 26961

By virtue of the authority vested in me by the Constitution and statutes of the United States of America, and as President of the United States of America, in furtherance of the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.), in order to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or Indirect support of new construction in wetlands wherever there is a practicable alternative, it is hereby ordered as follows:

Section 1. (a) Each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

(b) This Order does not apply to the issuance by Federal agencies of permits, licenses, or allocations to private parties for activities involving wetlands on non-Federal property.

Sec. 2. (a) In furtherance of Section 101(b)(3) of the [National Environmental Policy Act of 1969](#) EXIT Disclaimer (42 U.S.C. 4331(b)(3)) to improve and coordinate Federal plans, functions, programs and resources to the end that the Nation may attain the widest range of beneficial uses of the environment without degradation and risk to health or safety, each agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding the head of the agency may take into account economic, environmental and other pertinent factors.

(b) Each agency shall also provide opportunity for early public review of any plans or proposals for new construction in wetlands, in accordance with Section 2(b) of Executive Order No. 11514, as amended, including the development of procedures to accomplish this objective for Federal actions whose impact is not significant enough to require the preparation of an environmental impact statement under Section 102 (2) (C) of the [National Environmental Policy Act of 1969](#) EXIT Disclaimer, as amended.

Sec. 3. Any requests for new authorizations or appropriations transmitted to the Office of Management and Budget shall indicate, if an action to be proposed will be located in wetlands, whether the proposed action is in accord with this Order.

Sec. 4. When Federally-owned wetlands or portions of wetlands are proposed for lease, easement, right-of-way or disposal to non-Federal public or private parties, the Federal agency shall (a) reference in the conveyance those uses that are restricted under identified Federal, State or local wetlands regulations; and (b) attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successor, except where prohibited by law; or (c) withhold such properties from disposal.

Sec. 5. In carrying out the activities described in Section I of this Order, each agency shall consider factors relevant to a proposal's effect on the survival and quality of the wetlands. Among these factors are:

(a) public health, safety, and welfare, including water supply, quality, recharge and discharge; pollution; flood and storm hazards; and sediment and erosion;

(b) maintenance of natural systems, including conservation and long term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, wildlife, timber, and food and fiber resources; and

(c) other uses of wetlands in the public interest, including recreational, scientific, and cultural uses.

Sec. 6. As allowed by law, agencies shall issue or amend their existing procedures in order to comply with this Order. To the extent possible, existing processes, such as those of the Council on Environmental Quality and the Water Resources Council, shall be utilized fulfill the requirements of this Order. Sec. 7. As used in this Order:

(a) The term "agency" shall have the same meaning as the term "Executive agency" in Section 105 of Title 5 of the United States Code and shall Include the military departments; the directives contained in this Order, however, are meant to apply only to

those agencies which perform the activities described in Section I which are located in or affecting wetlands.

(b) The term "new construction" shall include draining, dredging, channelizing, filling, diking, impounding, and related activities and any structures or facilities begun or authorized after the effective date of this Order.

(c) The term "wetlands" means those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

Sec. 8. This Order does not apply to projects presently under construction, or to projects for which all of the funds have been appropriated through Fiscal Year 1977, or to projects and programs for which a draft or final environmental impact statement will be filed prior to October 1, 1977. The provisions of Section 2 of this Order shall be implemented by each agency not later than October 1, 1977.

Sec. 9. Nothing in this Order shall apply to assistance provided for emergency work, essential to save lives and protect property and public health and safety, performed pursuant to Sections 305 and 306 of the Disaster Relief Act of 1974 (88 Stat, 148, 42 U.S.C. 5145 and 5146).

Sec. 10. To the extent the provisions of Sections 2 and 5 of this Order are applicable to projects covered by Section 104(h) of the Housing and Community Development Act of 1974, as amended (88 Stat. 640, 42 U.S.C. 5304(h)), the responsibilities under those provisions may be assumed by the appropriate applicant, if the applicant has also assumed, with respect to such projects, all of the responsibilities for environmental review, decision making, and action pursuant to the [National Environmental Policy Act of 1969](#) EXIT Disclaimer, as amended.

JIMMY CARTER, May 24, 1977.

ADDENDUM C 1: Section 401, of the Clean Water Act

<http://www.wetlands.com/regs/sec401fc.htm>

Regulatory Program of the
US Army Corps of Engineers
SECTION 401 OF THE CLEAN WATER ACT

(AS CONTAINED IN THE CODE OF FEDERAL REGULATIONS, JAN 24, 1994)
TITLE 33 - NAVIGATION AND NAVIGABLE WATERS CHAPTER 26 - WATER
POLLUTION PREVENTION AND CONTROL SUBCHAPTER IV - PERMITS AND
LICENSES

Sec. 1341. Certification

(a) Compliance with applicable requirements; application; procedures; license suspension.

(1) Any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that any such discharge will comply with the applicable provisions of sections 1311, 1312, 1313, 1316, and 1317 of this title. In the case of any such activity for which there is not an applicable effluent limitation or other limitation under sections 1311(b) and 1312 of this title, and there is not an applicable standard under sections 1316 and 1317 of this title, the State shall so certify, except that any such certification shall not be deemed to satisfy section 1371(c) of this title. Such State or interstate agency shall establish procedures for public notice in the case of all applications for certification by it and, to the extent it deems appropriate, procedures for public hearings in connection with specific applications. In any case where a State or interstate agency has no authority to give such a certification, such certification shall be from the Administrator. If the State, interstate agency, or Administrator, as the case may be, fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after receipt of such request, the certification requirements of this subsection shall be waived with respect to such Federal application. No license or permit shall be granted until the certification required by this section has been obtained or has been waived as provided in the preceding sentence. No license or permit shall be granted if certification has been denied by the State, interstate agency, or the Administrator, as the case may be.

(2) Upon receipt of such application and certification the licensing or permitting agency shall immediately notify the Administrator of such application and certification.

Whenever such a discharge may affect, as determined by the Administrator, the quality of

the waters of any other State, the Administrator within thirty days of the date of notice of application for such Federal license or permit shall so notify such other State, the licensing or permitting agency, and the applicant. If, within sixty days after receipt of such notification, such other State determines that such discharge will affect the quality of its waters so as to violate any water quality requirements in such State, and within such sixty-day period notifies the Administrator and the licensing or permitting agency in writing of its objection to the issuance of such license or permit and requests a public hearing on such objection, the licensing or permitting agency shall hold such a hearing. The Administrator shall at such hearing submit his evaluation and recommendations with respect to any such objection to the licensing or permitting agency. Such agency, based upon the recommendations of such State, the Administrator, and upon any additional evidence, if any, presented to the agency at the hearing, shall condition such license or permit in such manner as may be necessary to insure compliance with applicable water quality requirements. If the imposition of conditions cannot insure such compliance such agency shall not issue such license or permit.

(3) The certification obtained pursuant to paragraph (1) of this subsection with respect to the construction of any facility shall fulfill the requirements of this subsection with respect to certification in connection with any other Federal license or permit required for the operation of such facility unless, after notice to the certifying State, agency, or Administrator, as the case may be, which shall be given by the Federal agency to whom application is made for such operating license or permit, the State, or if appropriate, the interstate agency or the Administrator, notifies such agency within sixty days after receipt of such notice that there is no longer reasonable assurance that there will be compliance with the applicable provisions of sections 1311, 1312, 1313, 1316, and 1317 of this title because of changes since the construction license or permit certification was issued in

- (A) the construction or operation of the facility,
- (B) the characteristics of the waters into which such discharge is made,
- (C) the water quality criteria applicable to such waters or
- (D) applicable effluent limitations or other requirements.

This paragraph shall be inapplicable in any case where the applicant for such operating license or permit has failed to provide the certifying State, or, if appropriate, the interstate agency or the Administrator, with notice of any proposed changes in the construction or operation of the facility with respect to which a construction license or permit has been granted, which changes may result in violation of section 1311, 1312, 1313, 1316, or 1317 of this title.

(4) Prior to the initial operation of any federally licensed or permitted facility or activity which may result in any discharge into the navigable waters and with respect to which a certification has been obtained pursuant to paragraph (1) of this subsection, which facility or activity is not subject to a Federal operating license or permit, the licensee or permittee shall provide an opportunity for such certifying State, or, if appropriate, the interstate agency or the Administrator to review the manner in which the facility or activity shall be operated or conducted for the purposes of assuring that applicable effluent limitations or other limitations or other applicable water quality requirements will not be violated.

Upon notification by the certifying State, or if appropriate, the interstate agency or the

Administrator that the operation of any such federally licensed or permitted facility or activity will violate applicable effluent limitations or other limitations or other water quality requirements such Federal agency may, after public hearing, suspend such license or permit. If such license or permit is suspended, it shall remain suspended until notification is received from the certifying State, agency, or Administrator, as the case may be, that there is reasonable assurance that such facility or activity will not violate the applicable provisions of section 1311, 1312, 1313, 1316, or 1317 of this title.

(5) Any Federal license or permit with respect to which a certification has been obtained under paragraph (1) of this subsection may be suspended or revoked by the Federal agency issuing such license or permit upon the entering of a judgment under this chapter that such facility or activity has been operated in violation of the applicable provisions of section 1311, 1312, 1313, 1316, or 1317 of this title.

(6) Except with respect to a permit issued under section 1342 of this title, in any case where actual construction of a facility has been lawfully commenced prior to April 3, 1970, no certification shall be required under this subsection for a license or permit issued after April 3, 1970, to operate such facility, except that any such license or permit issued without certification shall terminate April 3, 1973, unless prior to such termination date the person having such license or permit submits to the Federal agency which issued such license or permit a certification and otherwise meets the requirements of this section.

(b) Compliance with other provisions of law setting applicable water quality requirements. Nothing in this section shall be construed to limit the authority of any department or agency pursuant to any other provision of law to require compliance with any applicable water quality requirements. The Administrator shall, upon the request of any Federal department or agency, or State or interstate agency, or applicant, provide, for the purpose of this section, any relevant information on applicable effluent limitations, or other limitations, standards, regulations, or requirements, or water quality criteria, and shall, when requested by any such department or agency or State or interstate agency, or applicant, comment on any methods to comply with such limitations, standards, regulations, requirements, or criteria.

(c) Authority of Secretary of the Army to permit use of spoil disposal areas by Federal licensees or permittees. In order to implement the provisions of this section, the Secretary of the Army, acting through the Chief of Engineers, is authorized, if he deems it to be in the public interest, to permit the use of spoil disposal areas under his jurisdiction by Federal licensees or permittees, and to make an appropriate charge for such use. Moneys received from such licensees or permittees shall be deposited in the Treasury as miscellaneous receipts.

(d) Limitations and monitoring requirements of certification. Any certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with any applicable effluent limitations and other limitations,

under section 1311 or 1312 of this title, standard of performance under section 1316 of this title, or prohibition, effluent standard, or pretreatment standard under section 1317 of this title, and with any other appropriate requirement of State law set forth in such certification, and shall become a condition on any Federal license or permit subject to the provisions of this section.

SOURCE

(June 30, 1948, ch. 758, title IV, Sec. 401, as added Oct. 18, 1972, Pub. L. 92-500, Sec. 2, 86 Stat. 877; amended Dec. 27, 1977, Pub. L. 95-217, Sec. 61(b), 64, 91 Stat. 1598, 1599.)

AMENDMENTS

1977 - Subsec. (a). Pub. L. 95-217 inserted reference to section 1313 of this title in pars. (1), (3), (4), and (5), struck out par. (6) which provided that no Federal agency be deemed an applicant for purposes of this subsection, and redesignated par. (7) as (6).

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 1314, 1365, 1371, 1377 of this title.

ADDENDUM C 2: Section 404, of the Clean Water Act

**Regulatory Program of the
US Army Corps of Engineers**

SECTION 404 OF THE CLEAN WATER ACT

(AS CONTAINED IN THE WITH CODE OF FEDERAL REGULATIONS, JAN 1994)
TITLE 33 - NAVIGATION AND NAVIGABLE WATERS CHAPTER 26 - WATER
POLLUTION PREVENTION AND CONTROLS SUBCHAPTER IV - PERMITS AND
LICENSES

I. Sec. 1344. Permits for dredged or fill material

(a) Discharge into navigable waters at specified disposal sites

The Secretary may issue permits, after notice and opportunity for public hearings for the discharge of dredged or fill material into the navigable waters at specified disposal sites. Not later than the fifteenth day after the date an applicant submits all the information required to complete an application for a permit under this subsection, the Secretary shall publish the notice required by this subsection.

(b) Specification for disposal sites

Subject to subsection (c) of this section, each such disposal site shall be specified for each such permit by the Secretary

(1) through the application of guidelines developed by the Administrator, in conjunction with the Secretary, which guidelines shall be based upon criteria comparable to the criteria applicable to the territorial seas, the contiguous zone, and the ocean under section 1343(c) of this title, and

(2) in any case where such guidelines under clause (1) alone would prohibit the specification of a site, through the application additionally of the economic impact of the site on navigation and anchorage.

(c) Denial or restriction of use of defined areas as disposal sites

The Administrator is authorized to prohibit the specification (including the withdrawal of specification) of any defined area as a disposal site, and he is authorized to deny or restrict the use of any defined area for specification (including the withdrawal of specification) as a disposal site, whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. Before making such determination, the Administrator shall consult with the Secretary. The Administrator shall set forth in writing and make public his findings and his reasons for making any determination under this subsection.

(d) "Secretary" defined

The term "Secretary" as used in this section means the Secretary of the Army, acting through the Chief of Engineers.

(e) General permits on State, regional, or nationwide basis

(1) In carrying out his functions relating to the discharge of dredged or fill material under this section, the Secretary may, after notice and opportunity for public hearing, issue general permits on a State, regional, or nationwide basis for any category of activities involving discharges of dredged or fill material if the Secretary determines that the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment. Any general permit issued under this subsection shall

(A) be based on the guidelines described in subsection (b)(1) of this section, and

(B) set forth the requirements and standards which shall apply to any activity authorized by such general permit.

(2) No general permit issued under this subsection shall be for a period of more than five years after the date of its issuance and such general permit may be revoked or modified by the Secretary if, after opportunity for public hearing, the Secretary determines that the activities authorized by such general permit have an adverse impact on the environment or such activities are more appropriately authorized by individual permits.

(f) Non-prohibited discharge of dredged or fill material

(1) Except as provided in paragraph (2) of this subsection, the discharge of dredged or fill material -

(A) from normal farming, silviculture, and ranching activities such as plowing, seeding, cultivating, minor drainage, harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices;

(B) for the purpose of maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, and bridge abutments or approaches, and transportation structures;

(C) for the purpose of construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance of drainage ditches;

(D) for the purpose of construction of temporary sedimentation basins on a construction site which does not include placement of fill material into the navigable waters;

(E) for the purpose of construction or maintenance of farm roads or forest roads, or temporary roads for moving mining equipment, where such roads are constructed and maintained, in accordance with best management practices, to assure that flow and circulation patterns and chemical and biological characteristics of the navigable waters are not impaired, that the reach of the navigable waters is not reduced, and that any adverse effect on the aquatic environment will be otherwise minimized;

(F) resulting from any activity with respect to which a State has an approved program

under section 1288(b)(4) of this title which meets the requirements of subparagraphs (B) and (C) of such section, is not prohibited by or otherwise subject to regulation under this section or section 1311(a) or 1342 of this title (except for effluent standards or prohibitions under section 1317 of this title).

(2) Any discharge of dredged or fill material into the navigable waters incidental to any activity having as its purpose bringing an area of the navigable waters into a use to which it was not previously subject, where the flow or circulation of navigable waters may be impaired or the reach of such waters be reduced, shall be required to have a permit under this section.

(g) State administration

(1) The Governor of any State desiring to administer its own individual and general permit program for the discharge of dredged or fill material into the navigable waters (other than those waters which are presently used, or are susceptible to use in their natural condition or by reasonable improvement as a means to transport interstate or foreign commerce shoreward to their ordinary high water mark, including all waters which are subject to the ebb and flow of the tide shoreward to their mean high water mark, or mean higher high water mark on the west coast, including wetlands adjacent thereto) within its jurisdiction may submit to the Administrator a full and complete description of the program it proposes to establish and administer under State law or under an interstate compact. In addition, such State shall submit a statement from the attorney general (or the attorney for those State agencies which have independent legal counsel), or from the chief legal officer in the case of an interstate agency, that the laws of such State, or the interstate compact, as the case may be, provide adequate authority to carry out the described program.

(2) Not later than the tenth day after the date of the receipt of the program and statement submitted by any State under paragraph (1) of this subsection, the Administrator shall provide copies of such program and statement to the Secretary and the Secretary of the Interior, acting through the Director of the United States Fish and Wildlife Service.

(3) Not later than the ninetieth day after the date of the receipt by the Administrator of the program and statement submitted by any State, under paragraph (1) of this subsection, the Secretary and the Secretary of the Interior, acting through the Director of the United States Fish and Wildlife Service, shall submit any comments with respect to such program and statement to the Administrator in writing.

(h) Determination of State's authority to issue permits under State program; approval; notification; transfers to State program

(1) Not later than the one-hundred-twentieth day after the date of the receipt by the Administrator of a program and statement submitted by any State under paragraph (1) of this subsection, the Administrator shall determine, taking into account any comments submitted by the Secretary and the Secretary of the Interior, acting through the Director of the United States Fish and Wildlife Service, pursuant to subsection (g) of this section, whether such State has the following authority with respect to the issuance of permits pursuant to such program:

- (A) To issue permits which -
 - (i) apply, and assure compliance with, any applicable requirements of this section, including, but not limited to, the guidelines established under subsection (b)(1) of this section, and sections 1317 and 1343 of this title;
 - (ii) are for fixed terms not exceeding five years; and
 - (iii) can be terminated or modified for cause including, but not limited to, the following:
 - (I) violation of any condition of the permit;
 - (II) obtaining a permit by misrepresentation, or failure to disclose fully all relevant facts;
 - (III) change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.
- (B) To issue permits which apply, and assure compliance with, all applicable requirements of section 1318 of this title, or to inspect, monitor, enter, and require reports to at least the same extent as required in section 1318 of this title.
- (C) To assure that the public, and any other State the waters of which may be affected, receive notice of each application for a permit and to provide an opportunity for public hearing before a ruling on each such application.
- (D) To assure that the Administrator receives notice of each application (including a copy thereof) for a permit.
- (E) To assure that any State (other than the permitting State), whose waters may be affected by the issuance of a permit may submit written recommendations to the permitting State (and the Administrator) with respect to any permit application and, if any part of such written recommendations are not accepted by the permitting State, that the permitting State will notify such affected State (and the Administrator) in writing of its failure to so accept such recommendations together with its reasons for so doing.
- (F) To assure that no permit will be issued if, in the judgment of the Secretary, after consultation with the Secretary of the department in which the Coast Guard is operating, anchorage and navigation of any of the navigable waters would be substantially impaired thereby.
- (G) To abate violations of the permit or the permit program, including civil and criminal penalties and other ways and means of enforcement.
- (H) To assure continued coordination with Federal and Federal-State water-related planning and review processes.

(2) If, with respect to a State program submitted under subsection (g)(1) of this section, the Administrator determines that such State -

- (A) has the authority set forth in paragraph (1) of this subsection, the Administrator shall approve the program and so notify (i) such State and (ii) the Secretary, who upon subsequent notification from such State that it is administering such program, shall suspend the issuance of permits under subsections (a) and (e) of this section for activities with respect to which a permit may be issued pursuant to such State program; or
- (B) does not have the authority set forth in paragraph (1) of this subsection, the Administrator shall so notify such State, which notification shall also describe the revisions or modifications necessary so that such State may resubmit such program for a determination by the Administrator under this subsection.

(3) If the Administrator fails to make a determination with respect to any program submitted by a State under subsection (g)(1) of this section within one-hundred-twenty days after the date of the receipt of such program, such program shall be deemed approved pursuant to paragraph (2)(A) of this subsection and the Administrator shall so notify such State and the Secretary who, upon subsequent notification from such State that it is administering such program, shall suspend the issuance of permits under subsection (a) and (e) of this section for activities with respect to which a permit may be issued by such State.

(4) After the Secretary receives notification from the Administrator under paragraph (2) or (3) of this subsection that a State permit program has been approved, the Secretary shall transfer any applications for permits pending before the Secretary for activities with respect to which a permit may be issued pursuant to such State program to such State for appropriate action.

(5) Upon notification from a State with a permit program approved under this subsection that such State intends to administer and enforce the terms and conditions of a general permit issued by the Secretary under subsection (e) of this section with respect to activities in such State to which such general permit applies, the Secretary shall suspend the administration and enforcement of such general permit with respect to such activities.

(i) Withdrawal of approval

Whenever the Administrator determines after public hearing that a State is not administering a program approved under subsection (h)(2)(A) of this section, in accordance with this section, including, but not limited to, the guidelines established under subsection (b)(1) of this section, the Administrator shall so notify the State, and, if appropriate corrective action is not taken within a reasonable time, not to exceed ninety days after the date of the receipt of such notification, the Administrator shall

(1) withdraw approval of such program until the Administrator determines such corrective action has been taken, and

(2) notify the Secretary that the Secretary shall resume the program for the issuance of permits under subsections (a) and (e) of this section for activities with respect to which the State was issuing permits and that such authority of the Secretary shall continue in effect until such time as the Administrator makes the determination described in clause (1) of this subsection and such State again has an approved program.

(j) Copies of applications for State permits and proposed general permits to be transmitted to Administrator

Each State which is administering a permit program pursuant to this section shall transmit to the Administrator

(1) a copy of each permit application received by such State and provide notice to the Administrator of every action related to the consideration of such permit application, including each permit proposed to be issued by such State, and

(2) a copy of each proposed general permit which such State intends to issue. Not later

than the tenth day after the date of the receipt of such permit application or such proposed general permit, the Administrator shall provide copies of such permit application or such proposed general permit to the Secretary and the Secretary of the Interior, acting through the Director of the United States Fish and Wildlife Service. If the Administrator intends to provide written comments to such State with respect to such permit application or such proposed general permit, he shall so notify such State not later than the thirtieth day after the date of the receipt of such application or such proposed general permit and provide such written comments to such State, after consideration of any comments made in writing with respect to such application or such proposed general permit by the Secretary and the Secretary of the Interior, acting through the Director of the United States Fish and Wildlife Service, not later than the ninetieth day after the date of such receipt. If such State is so notified by the Administrator, it shall not issue the proposed permit until after the receipt of such comments from the Administrator, or after such ninetieth day, whichever first occurs. Such State shall not issue such proposed permit after such ninetieth day if it has received such written comments in which the Administrator objects (A) to the issuance of such proposed permit and such proposed permit is one that has been submitted to the Administrator pursuant to subsection (h)(1)(E) of this section, or (B) to the issuance of such proposed permit as being outside the requirements of this section, including, but not limited to, the guidelines developed under subsection (b)(1) of this section unless it modifies such proposed permit in accordance with such comments. Whenever the Administrator objects to the issuance of a permit under the preceding sentence such written objection shall contain a statement of the reasons for such objection and the conditions which such permit would include if it were issued by the Administrator. In any case where the Administrator objects to the issuance of a permit, on request of the State, a public hearing shall be held by the Administrator on such objection. If the State does not resubmit such permit revised to meet such objection within 30 days after completion of the hearing or, if no hearing is requested within 90 days after the date of such objection, the Secretary may issue the permit pursuant to subsection (a) or (e) of this section, as the case may be, for such source in accordance with the guidelines and requirements of this chapter.

(k) Waiver

In accordance with guidelines promulgated pursuant to subsection (i)(2) of section 1314 of this title, the Administrator is authorized to waive the requirements of subsection (j) of this section at the time of the approval of a program pursuant to subsection (h)(2)(A) of this section for any category (including any class, type, or size within such category) of discharge within the State submitting such program.

(l) Categories of discharges not subject to requirements

The Administrator shall promulgate regulations establishing categories of discharges which he determines shall not be subject to the requirements of subsection (j) of this section in any State with a program approved pursuant to subsection (h)(2)(A) of this section. The Administrator may distinguish among classes, types, and sizes within any category of discharges.

(m) Comments on permit applications or proposed general permits by Secretary of the Interior acting through Director of United States Fish and Wildlife Service

Not later than the ninetieth day after the date on which the Secretary notifies the Secretary of the Interior, acting through the Director of the United States Fish and Wildlife Service that

- (1) an application for a permit under subsection (a) of this section has been received by the Secretary, or
- (2) the Secretary proposes to issue a general permit under subsection (e) of this section, the Secretary of the Interior, acting through the Director of the United States Fish and Wildlife Service, shall submit any comments with respect to such application or such proposed general permit in writing to the Secretary.

(n) Enforcement authority not limited

Nothing in this section shall be construed to limit the authority of the Administrator to take action pursuant to section 1319 of this title.

(o) Public availability of permits and permit applications

A copy of each permit application and each permit issued under this section shall be available to the public. Such permit application or portion thereof, shall further be available on request for the purpose of reproduction.

(p) Compliance

Compliance with a permit issued pursuant to this section, including any activity carried out pursuant to a general permit issued under this section, shall be deemed compliance, for purposes of sections 1319 and 1365 of this title, with sections 1311, 1317, and 1343 of this title.

(q) Minimization of duplication, needless paperwork, and delays in issuance; agreements

Not later than the one-hundred-eightieth day after December 27, 1977, the Secretary shall enter into agreements with the Administrator, the Secretaries of the Departments of Agriculture, Commerce, Interior, and Transportation, and the heads of other appropriate Federal agencies to minimize, to the maximum extent practicable, duplication, needless paperwork, and delays in the issuance of permits under this section. Such agreements shall be developed to assure that, to the maximum extent practicable, a decision with respect to an application for a permit under subsection (a) of this section will be made not later than the ninetieth day after the date the notice for such application is published under subsection (a) of this section.

(r) Federal projects specifically authorized by Congress

The discharge of dredged or fill material as part of the construction of a Federal project specifically authorized by Congress, whether prior to or on or after December 27, 1977, is not prohibited by or otherwise subject to regulation under this section, or a State program approved under this section, or section 1311(a) or 1342 of this title (except for effluent standards or prohibitions under section 1317 of this title), if information on the effects of such discharge, including consideration of the guidelines developed under subsection (b)(1) of this section, is included in an environmental impact statement for such project pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and such environmental impact statement has been submitted to Congress before the actual discharge of dredged or fill material in connection with the construction of such project and prior to either authorization of such project or an appropriation of funds for such construction.

(s) Violation of permits

(1) Whenever on the basis of any information available to him the Secretary finds that any person is in violation of any condition or limitation set forth in a permit issued by the Secretary under this section, the Secretary shall issue an order requiring such person to comply with such condition or limitation, or the Secretary shall bring a civil action in accordance with paragraph (3) of this subsection.

(2) A copy of any order issued under this subsection shall be sent immediately by the Secretary to the State in which the violation occurs and other affected States. Any order issued under this subsection shall be by personal service and shall state with reasonable specificity the nature of the violation, specify a time for compliance, not to exceed thirty days, which the Secretary determines is reasonable, taking into account the seriousness of the violation and any good faith efforts to comply with applicable requirements. In any case in which an order under this subsection is issued to a corporation, a copy of such order shall be served on any appropriate corporate officers.

(3) The Secretary is authorized to commence a civil action for appropriate relief, including a permanent or temporary injunction for any violation for which he is authorized to issue a compliance order under paragraph (1) of this subsection. Any action under this paragraph may be brought in the district court of the United States for the district in which the defendant is located or resides or is doing business, and such court shall have jurisdiction to restrain such violation and to require compliance. Notice of the commencement of such action (Note: Probably should be action) shall be given immediately to the appropriate State.

(4) Any person who violates any condition or limitation in a permit issued by the Secretary under this section, and any person who violates any order issued by the Secretary under paragraph (1) of this subsection, shall be subject to a civil penalty not to exceed \$25,000 per day for each violation. In determining the amount of a civil penalty the court shall consider the seriousness of the violation or violations, the economic benefit (if any) resulting from the violation, any history of such violations, any good-faith efforts to comply with the applicable requirements, the economic impact of the penalty on the violator, and such other matters as justice may require.

(t) Navigable waters within State jurisdiction

Nothing in this section shall preclude or deny the right of any State or interstate agency to control the discharge of dredged or fill material in any portion of the navigable waters within the jurisdiction of such State, including any activity of any Federal agency, and each such agency shall comply with such State or interstate requirements both substantive and procedural to control the discharge of dredged or fill material to the same extent that any person is subject to such requirements. This section shall not be construed as affecting or impairing the authority of the Secretary to maintain navigation.

SOURCE

(June 30, 1948, ch. 758, title IV, Sec. 404, as added Oct. 18, 1972, Pub. L. 92-500, Sec. 2, 86 Stat. 884; amended Dec. 27, 1977, Pub. L. 95-217, Sec. 67(a), (b), 91 Stat. 1600; Feb. 4, 1987, Pub. L. 100-4, title III, Sec. 313(d), 101 Stat. 45.)

REFERENCES IN TEXT

The National Environmental Policy Act of 1969, referred to in subsec. (r), is Pub. L. 91-190, Jan. 1, 1970, 83 Stat. 852, as amended, which is classified generally to chapter 55 (Sec. 4321 et seq.) of Title 42, The Public Health and Welfare. For complete classification of this Act to the Code, see Short Title note set out under section 4321 of Title 42 and Tables.

AMENDMENTS

1987 - Subsec. (s). Pub. L. 100-4 redesignated par. (5) as (4), substituted "\$25,000 per day for each violation" for "\$10,000 per day of such violation", inserted provision specifying factors to consider in determining the penalty amount, and struck out former par. (4) which read as follows: "(A) Any person who willfully or negligently violates any condition or limitation in a permit issued by the Secretary under this section shall be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or by both. If the conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two years, or by both." (B) For the purposes of this paragraph, the term 'person' shall mean, in addition to the definition contained in section 1362(5) of this title, any responsible corporate officer." 1977 - Subsec. (a). Pub. L. 95-217, Sec. 67(a)(1), substituted "The Secretary" for "The Secretary of the Army, acting through the Chief of Engineers," and inserted provision that, not later than the fifteenth day after the date an applicant submits all the information required to complete an application for a permit under this subsection, the Secretary publish the notice required by this subsection. Subsecs. (b), (c). Pub. L. 95-217, Sec. 67(a)(2), substituted "the Secretary" for "the Secretary of the Army". Subsecs. (d) to (t). Pub. L. 95-217, Sec. 67(b), added subsecs. (d) to (t).

TRANSFER OF FUNCTIONS

Enforcement functions of Administrator or other official of the Environmental Protection Agency and of Secretary or other official in Department of Interior relating to review of the Corps of Engineers' dredged and fill material permits and such functions of Secretary of the Army, Chief of Engineers, or other official in Corps of Engineers of the United States Army relating to compliance with dredged and fill material permits issued under this section with respect to pre-construction, construction, and initial operation of transportation system for Canadian and Alaskan natural gas were transferred to the Federal Inspector,

Office of Federal Inspector for the Alaska Natural Gas Transportation System, until the first anniversary of the date of initial operation of the Alaska Natural Gas Transportation System, see Reorg. Plan No. 1 of 1979, Sec. 102(a), (b), (e), 203(a), 44 F.R. 33663, 33666, 93 Stat. 1373, 1376, effective July 1, 1979, set out in the Appendix to Title 5, Government Organization and Employees. Office of Federal Inspector for the Alaska Natural Gas Transportation System abolished and functions and authority vested in Inspector transferred to Secretary of Energy by section 3012(b) of Pub. L. 102-486, set out as an Abolition of Office of Federal Inspector note under section 719e of Title 15, Commerce and Trade.

AUTHORITY TO DELEGATE TO STATE OF WASHINGTON FUNCTIONS OF THE SECRETARY RELATING TO LAKE CHELAN, WASHINGTON

Section 76 of Pub. L. 95-217 provided that: "The Secretary of the Army, acting through the Chief of Engineers, is authorized to delegate to the State of Washington upon its request all or any part of those functions vested in such Secretary by section 404 of the Federal Water Pollution Control Act (this section) and by sections 9, 10, and 13 of the Act of March 3, 1899 (sections 401, 403, and 407 of this title), relating to Lake Chelan, Washington, if the Secretary determines (1) that such State has the authority, responsibility, and capability to carry out such functions, and (2) that such delegation is in the public interest. Such delegation shall be subject to such terms and conditions as the Secretary deems necessary, including, but not limited to, suspension and revocation for cause of such delegation."

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 59j-1, 59y, 59bb, 59cc, 59dd, 59ff, 59gg, 59hh, 426p, 1251, 1285, 1288, 1311, 1318, 1319, 1342, 1377, 2104, 2317 of this title; title 42 section 9601.

ADDENDUM D: Excerpts from U.S. Fish and Wildlife Service Grand Kankakee Marsh, National Wildlife Refuge, Environmental Assessment

Page 44 – “The frequent flooding in the Basin is the result of several factors, including 1) the loss of river capacity due to channelization, 2) **increased runoff to the river and its major tributaries due to agricultural drainage and urban/rural development**, 3) **loss of wetlands to retain and slowly release flood waters**, 4) erosion of topsoil due to inadequate land treatment practices, and 5) bank erosion along the river and its tributaries as a result of increased peak flows. (*emphasis added*)”

Page 46 - Amphibians and Reptile Species

“Wetland protection and linking isolated wetlands into a landscape complex in the Basin could be important for the long-term survival of some amphibian species.”

Page 47 – “The wetlands of the Kankakee remain a significant breeding area for waterfowl despite habitat loss and fragmentation. Dubowy and Hartman, 1995 studied waterfowl nesting in the Basin and found mallards, blue-winged teal, and wood ducks exhibited a nesting density of 0.8 pairs/wetland acre in natural and restored wetlands within the Basin. In addition, tens of thousands of migratory waterfowl depend on the wetlands of the Kankakee River Basin. Waterfowl hunting remains an important recreational activity in the area with a tradition going back to the days of the Grand Marsh.”

Page 47 – “There are three ecosystems of primary importance with respect to the Kankakee River Basin: wetlands, savannas, and prairies. Historically, ecosystem level protection has occurred through regulatory programs such as Section 404 of the Clean Water Act, and by protecting habitat for refuges, state protected areas, and preserves.”

Page 48 – “In the Kankakee River Basin, several examples of each ecosystem are protected in existing managed areas. Wetlands are an important component of most of the managed areas in the Basin. More than 1,000 acres of wet prairie and sedge meadows are protected at the Iroquois County State Conservation Area and the Beaver Lake State Nature Preserve and over 2,000 acres of high-to-fair quality oak savanna are protected among several state-owned areas in Indiana and Illinois. In addition, TNC’s Fair Oaks Farm restoration project could result in restoration of approximately 7,200 acres of grasslands (TNC 1991). While state agencies and private organizations have made significant strides in ecosystem protection, for the most part, protected areas remain isolated, and ecosystems are unrelated to one another in the landscape.”

Page 48 - A. Wetland Ecosystems

“Wetlands have declined at an alarming rate. The State of Illinois has lost more than 85 percent of its pre-settlement wetlands and the State of Indiana has lost about 87% (Dahl 1990). Of the approximately 5.6 million acres of pre-settlement wetlands in Indiana, approximately 15% were found in the Grand Kankakee Marsh. Abundant, diverse, and functioning wetlands provide a broad range of benefits to society. The value of wetlands has been accepted by multi-disciplinary forums (National Wetlands Policy Forum 1988). Wetland ecologists classify these values into 3 categories: population, ecosystem, and global values. Population values consist of habitat for a wide variety of species and related recreation values. For example, about 35% of all endangered animal species require wetlands during their life cycles (National Wetlands Policy Forum 1988). Ecosystem values include: flood water storage, water quality, and sediment control. Global values may include maintenance of the

biogeochemical cycles of nitrogen, carbon, and methane (which may be important in preservation of the ozone layer).

“Wetlands are among the most productive areas on earth. These diverse systems provide the biological interface between the aquatic and terrestrial communities, which multiply their function and contribute to their dynamics. Within wetlands, invertebrates, insects, gastropods, and other organisms living among the vegetation provide an important food source for fish and mammals. Water birds and other wildlife rely on wetlands for subsistence, nest sites, and cover, while others utilize fish and invertebrates which inhabit the vegetation. Where natural processes are still occurring, zonation and succession in response to environmental conditions are among the important community processes. Water level fluctuations and the resultant plant and animal response are often the most significant driving force in most wetland communities.

“Another ecologically important aquatic habitat found along the Kankakee River is side channels, which are defined as all departures from the main channel in which there is current during normal river stage. These areas are characterized by low current, soft bottom, and reduced turbidity, and provide important food sources of zooplankton, phytoplankton, and benthic organisms for fish, waterfowl, and migratory birds. Side channels often have a greater production and diversity of benthic organisms, phytoplankton, and aquatic macrophytes than the main channel due to their structural diversity that ranges from fast flowing chutes with high banks, to sluggish streams moving through marshy areas.”

Page 54- Water Quality in the Kankakee River

“With these alternatives, we would expect water quality in the Kankakee River to improve, primarily because of the removal of approximately 10-15,000 acres of marginal farmland from agricultural production. Although this would occur over a relatively long time (at least 30 years), the ultimate result would be a substantial reduction in sediments and farm chemicals entering area waterways. Restoring and developing moist-soil and forested wetlands as well as certain uplands would increase the water filtration and ground water recharge capabilities within the River ecosystem. Stabilizing riverbanks would decrease the serious erosion problem occurring in the upper end of the project area.

Page 55 - Under these alternatives the Service would cooperate with appropriate agencies and individuals to identify off-site sources of contamination and formulate effective measures to reduce or eliminate many threats to the water quality of the Kankakee River and its tributaries. This could involve annual water quality monitoring by the Service to identify specific pollutants and their sources, or by facilitating the formation of a community-based “River Watch” or “Watershed Association” composed of students, community leaders, farmers, conservation groups and others to work together in addressing water quality issues and developing a comprehensive plan for restoring the natural health and beauty of the river.

The proposed Refuge would significantly improve riparian habitat along the Kankakee mainstem and on portions of various tributaries. In addition, wetland restoration would greatly improve the function of thousands of acres of wetland for wildlife.

<http://www.fws.gov/midwest/planning/GrandKankakee/FinalEA/FinalEA.pdf>