

INDIANA SILVER JACKETS NORTH BRANCH ELKHART RIVER WEST LAKES TASK TEAM



CHAPTER 1 - PREVIOUS REPORTS

This Chapter identifies and summarizes previous reports that have been completed related to flooding and/or resource and data availability in and around the North Branch Elkhart River watershed, and specifically the West Lakes Chain, Noble County. The Silver Jackets/West Lakes Team used existing information, where appropriate, to supplement the understanding of this watershed and the history of flooding issues.

After reviewing the following nine reports, it was found that:

- Flooding has been documented for decades in the West Lakes Area.
- Two (2) reports in the 1980s attributed flooding at West Lakes primarily to the construction of homes in the floodplain.
- There are several locally established steering groups working towards finding and implementing solutions to resource problems in the watershed. The locally established groups may have different primary goals (water quality, flooding, recreation), but all goals are water resource related.
- There is a large quantity of useful information and data already compiled and available for use in continued efforts to improve this watershed.
- Noble County has been proactive in completing two (2) reports (Noble County Comprehensive Plan and Noble County Hazard Mitigation Plan) that outline goals and objectives to improve the watershed and reduce flood hazards through effective planning and appropriate regulatory oversight. In addition, the completion of the Noble County Hazard Mitigation Plan allows the County to be eligible for federal hazard mitigation funds, if needed.
- Multiple reports identify effective Floodplain and Stormwater Management as an effective tool to help eliminate damages due to flooding.
- Multiple reports identify the need for existing floodplain mapping to be reviewed and updated.

1970s: Flood Insurance Studies

A flood insurance study (FIS) is a study that is completed to assist communities in identifying flood hazard areas and to assist in the administration of the National Flood Insurance Program. These studies are done in cooperation with Federal, State, and local governmental authorities, and include a detailed hydrologic and hydraulic analysis for selected waterways. The studies typically include maps of flood hazard areas for use in local planning/regulation and for flood insurance purposes.

For areas in the North Branch Elkhart River watershed/drainage basin, a FIS is available for:

1. Noble County (unincorporated areas), which includes the West Lakes Chain, effective date 1979,
2. Rome City, effective date 1982,
3. Kendallville, effective date 1983,
4. LaGrange County (unincorporated areas), effective date 1994

The associated maps are also available in digital format on the Federal Emergency Management Agency's website at www.FEMA.gov. Copies of these maps also should be available at the office of the local flood plain administrator.

1980: “The Indiana Water Resource. Availability, Uses, and Needs”, The Governor's Water Resources Study Commission, February 1980.

This Report was prepared by the Governor's Water Resources Study Commission to provide general information on the water resource on a statewide basis, as well as more detailed analysis on a regional basis. In this Report, the State is broken into 15 Regions. The West Lakes Area is included in Region Three A (3-a).

Statewide and for each Region, the Report presents information related to: 1) The Water Resource, 2) Utilization of the Water Resource, 3) Excess Water, and 4) Water Quality.

Of particular interest to the understanding of the drainage basin/watershed relationship to the hydrologic cycle in the West Lakes Area, the Report explains:

- An important landform from the water resource standpoint is the watershed/drainage basin.
- A watershed/drainage basin is an area that gathers water originating as precipitation, reduces the runoff because of the unique physical properties of the basin, and then contributes it ultimately downstream to a receiving stream or other body of water (such as to Waldron Lake, near the bottom of the North Branch Elkhart River watershed/drainage basin).
- On average 69 percent or about 26 inches of the average annual precipitation in Indiana is returned to the atmosphere as evapotranspiration (loss of water from the soil by evaporation and by transpiration from plants).
- The remaining approximately 12 inches of the annual precipitation represents the net supply of the water resource. This remaining water resource is divided between two major components, ground water and surface water.
- Ground water occurs in underground, geologic formations (water that infiltrates through the soil to underlying aquifers that have the ability to absorb, store, and transmit water).
- Surface water occurs in surface streams and lakes.

This Report provides a substantial amount of statewide and regional information for use by water resource planners to provide for wise use of our State's water resources.

1981: “Report of Preliminary Flooding Problems, North Branch Elkhart River and Associated Lakes, LaGrange and Noble Counties, Indiana”, IDNR, Division of Water, December 1981.

This Report was prepared by the IDNR, Division of Water in response to requests by the local residents and local State Legislators. The Report investigated the flooding problems and considered alternatives to help alleviate flooding in the area. The Report's study area included West Lakes Chain, Indian Lakes Chain, and Oliver Lake in Noble and LaGrange counties.

This Report attributed the flooding problems in the area directly to the fact that homes have been constructed without adequate freeboard.

A reconnaissance of the North Branch Elkhart River channel indicated some areas were shown to have tree, debris, and sediment build-up.

A hydrologic study of the area was performed using survey data and stream flow characteristics to help predict discharge and stage values for different flood events.

The Report considered structural (clearing and snagging) and non-structural (flood plain management practices) alternatives. The Report looked at three plans for a clearing and snagging project, and included costs and effects on different flood events for each plan. The Report found that Noble County participated in the National Flood Insurance Program, making flood insurance available to property owners and requiring local units of government to adopt flood plain ordinances that regulate and control land use in flood prone areas. LaGrange County did not participate in this program.

The Report recommended the implementation of the lowest impact clearing and snagging project along the North Branch Elkhart River in conjunction with the adoption of a Flood Plain Management Ordinance by LaGrange County.

1983: “Section 208 Reconnaissance Report on Flood Control on the North Branch of the Elkhart River and the West Lakes Chain in Noble County, Indiana”, Department of the Army, Detroit District, Corps of Engineers, August 1983.

This Report was prepared under the authority of Section 208 of the 1954 Flood Control Act at the request of the Noble County Commissioners in a letter dated March 22, 1982. The letter requested assistance from the U.S. Army Corps of Engineers (USACE) to study and clean the North Branch Elkhart River in Noble County.

The Report was prepared to determine the feasibility of a federal flood control project in this area based upon information related to economic and environmental justification,

technical viability, social and institutional acceptability, and Federal interest. Clearing and snagging (the removal of fallen trees, overgrown vegetation and debris, within the channel) was the only project alternative investigated in this report.

The Report found that flooding in the watershed can be attributed to a combination of several factors, with the major cause being the construction of structures in the floodplain without appropriate freeboard. All 115 structures (100 percent) in the study area were found to be located in the five-year floodplain (20 percent chance of being equaled or exceeded each year), and 93 of the 115 structures (80 percent) were found to be located in the two-year floodplain (50 percent chance of being equaled or exceeded each year).

The Report included a benefit/cost analysis. Costs were calculated by using costs associated with initial project costs, land rights, and annual maintenance based on a 20-year project life. Benefits were calculated as the difference between average annual damages with existing conditions, and average annual damages with the proposed project. The benefit-cost ratio was found to be 0.7; therefore, the project could not be economically justified.

The Report recognized that flooding is threatening the safety and economic viability of the area but ultimately concluded a proposed clearing and snagging project was not feasible and that federal involvement would be terminated.

1987: “Water Resource Availability in the St. Joseph River Basin, Indiana” State of Indiana, Department of Natural Resources, Division of Water, 1987

This Report was prepared under a mandate of the Water Resource Management Act (formerly IC 13-2-6.1) to the Natural Resources Commission (NRC) to complete an assessment of water resource availability in the State of Indiana. The NRC divided Indiana into 12 water management basins for the Department of Natural Resources (DNR), Division of Water’s technical staff to perform a series of basin-wide investigations. The St. Joseph River Basin, which includes the North Branch Elkhart River Watershed, was the first in the series of basins studied by the DNR.

The Report includes information related to: population and economic data, geologic framework, basin hydrology and available water supply, water use, and future water resource development.

This Report is intended to provide information to decision makers involved in water resources planning.

2005: “West Lakes Sediment Removal Plan, Steinbarger Lake to Waldron Lake Channel, Jones Lake to Waldron Lake Channel, Noble County, Indiana”, September 2005.

This Plan was completed as part of an application by West Lakes Conservation, Inc., to request funds from the Lake and River Enhancement Program (LARE) administered by the Department of Natural Resources (DNR), Division of Fish and Wildlife.

The West Lakes Association requested LARE funding to perform two channel dredging projects in the West Lakes Chain to address boat access/recreational issues. The 700-foot long channel between Steinbarger Lake and Waldron Lake, and the 3,000-foot channel between Jones Lake and Waldron Lake were included in the Plan.

The Plan included a channel sediment field analysis, sediment laboratory analysis, and plans associated with a sediment disposal site. The Plan found no sampled metals exceeding the Environmental Protection Agency's maximum limits in the channel sediments.

The DNR approved funding for the projects in the 2007-2008 round of LARE grants in the amount of \$65,650. The projects were initiated in the later half of 2009.

2005: “St. Joseph River Watershed Management Plan”, 2005

This plan was completed in 2005 and was funded by the U.S. Environmental Protection Agency as a tool to unite stakeholders in the St. Joseph River Watershed, recognized as a critical component of the Great Lakes Basin.

This Plan includes information describing the location/size, land use and natural history, population, geology, topography, and hydrology of the St. Joseph River Watershed. The Plan identifies “critical areas” related primarily to issues associated with water quality and/or pollutants, and identifies goals and objectives to improve the condition of the watershed. Potential funding sources for implementation of goals and objectives are also included in the Plan.

The Plan describes the watershed as draining 4,685 square miles in Indiana and Michigan, with the Elkhart River identified as one of the major tributaries. The Plan states that agricultural activities have the most significant impact on surface waters in the watershed, and recognizes the increasing impact of residential and commercial development. The implementation of “best management practices” related to soil erosion, agricultural runoff and stormwater management is identified as a high priority.

In addition, among many goals and objectives related to education and outreach, the Plan recommends the unique natural features in the watershed that provide many benefits, including floodwater storage and groundwater recharge, should be protected and/or managed.

2007: “Noble County Comprehensive Plan”, Noble County Planning Initiative, 1968, updated 1986, 2007.

This Plan was initially completed in 1968 and was updated in 1986 and again in 2007. According to Indiana Law, in order for a community to exercise the power of zoning, a

comprehensive plan must be developed and maintained. This plan meets (and exceeds) the provisions of this requirement.

This Plan is intended to provide a vision for Noble County's future, including the identification of goals, objectives, and implementation measures. The 2007 updates were completed through the Noble County Planning Initiative, which included review and/or participation from a steering committee, interest groups, county leaders, and the general public.

Six (6) main topics, each related to an identified goal for the vision of Noble County, are covered in the Plan: Land Use and Growth Management; Economic Growth and Development; Transportation; Environment; Infrastructure and Public Services; and People and Relationships.

The Environmental Section of the Plan recognizes that the unique environmental and natural resources of the area contribute to the high quality of life in Noble County. The Plan reports nearly 83 percent of respondents in a Noble County Community Values Survey agreed that natural resources and environmental features should be protected from the impacts of development. To this end (and related to flooding issues), this section identifies specific goals/objectives, such as: conserve existing natural areas (including wetlands and floodplains); protect water quality in the watersheds; work to obtain accurately delineated floodplain maps; strongly discourage and restrict construction in the floodplain; encourage/require new development to be sensitive to environmental features and storm water management; restrict certain land uses and use best management practices to protect riparian corridors; and encourage the development of a county-wide stormwater ordinance.

The People and Relationships Section of the plan encourages cooperative relationships with partners who have similar goals through networking, with the acknowledgement that local organizations who work together toward a common goal often accomplish their own missions more efficiently.

2008: "Elkhart River Watershed Management Plan", V3 Companies, March 2008.

This Plan was completed by a private consulting firm at the request of the Elkhart River Restoration Association, Inc. and with the help of the Elkhart County Soil and Water Conservation District. The study was completed with funding assistance from an Environmental Protection Agency grant (319 Program) issued through the Indiana Department of Environmental Management.

This Plan was performed to identify and provide a plan to protect and enhance the resources in the Elkhart River Watershed. The watershed area included in the study encompasses the entire Elkhart River Watershed, including the North Branch Elkhart River.

This Study identified 26 “Critical Areas” in the Elkhart River Watershed. A critical area is defined as contributing to problems associated with *E. coli*, sediment, and nutrient loading (phosphorus and nitrogen). Critical Area “19” includes 5,885 acres in the West Lakes Chain and surrounding area. The Study states that implementation of best management practices in this area, especially in the agricultural areas, would help improve the condition of the Watershed.

The Study developed six goals for implementation in the Watershed, and included milestones and measurable goals for each. The six goals include:

1. Sustain and increase the capacity of a stakeholder group.
2. Reduce sedimentation and soil erosion.
3. Reduce *E. coli* levels.
4. Reduce nutrient loading.
5. Increase and protect open space.
6. Establish outreach and education programs.

2008: “Noble County Multi-Hazard Mitigation Plan”, Christopher Burke Engineering, Ltd., March 2008

This Plan was completed as a joint effort led by the Maumee River Basin Commission (MRBC) and Noble County Commissioners with participation by Noble County, Town of Albion, City of Kendallville, City of Ligonier, and Town of Rome City. The primary purpose for the preparation of the plan was to meet requirements of the Federal Disaster Mitigation Act of 2000 and allow the local communities to be eligible for future mitigation funds. The plan identifies natural hazards in the area as well as actions to reduce losses from those hazards.

Related to the hazard information on flooding, this Plan identifies the North Branch Elkhart River Watershed as the largest watershed in Noble County. The Plan states that improved land use planning, floodplain management activities, and stormwater management could significantly reduce losses associated with flooding. Specific to the West Lakes Chain, this Plan determined that to reduce flood damages, a detailed study of the Base Flood Elevation should be undertaken, and suggests that a more restrictive elevation criteria be considered (BFE + 4 feet) when construction activities take place in the floodplain around these lakes.

Section 5 of the Plan includes a list of mitigation practices to be implemented to offset losses identified in the plan. Flood hazard mitigation related practices include:

- Prohibit construction of new critical structures in known hazard areas (such as floodplains),
- Anchor all manufactured homes,
- Look into reciprocal agreements with surrounding counties for damage assessment inspections following hazard events,
- Increase public outreach and education,

- Update Flood Insurance Rate Maps and provide funding for continual floodplain analysis,
- Continue to maintain waterways and regulated drains,
- Provide opportunities for staff to become Certified Floodplain Managers,
- Encourage all communities to adopt more restrictive language in their Floodplain Ordinance, and
- Remove log jams.