

Executive Summary

Table of Contents

1.0	Introduction	1-1
1.1	The East Branch South Branch Kishwaukee River Creek Watershed	1-1
1.1.1	Current Watershed Setting	1-1
1.1.2	The Watershed Over Time	1-2
1.1.3	Impacts of Watershed Development	1-3
1.1.4	Where Do We Go From Here?	1-6
1.2	About This Watershed-Based Plan	1-7
1.2.1	Project Purpose	1-7
1.2.2	DeKalb County Watershed Steering Committee	1-7
1.2.3	Project Funding	1-9
1.2.4	Watershed-Based Plan Elements	1-9
1.2.5	Prior Watershed Studies and Plans	1-10
1.2.6	Process and Plan Organization	1-10
1.3	Using This Plan	1-12
2.0	Goals and Objectives	2-1
2.1	Watershed Steering Committee Goals	2-1
2.2	Watershed Goals and Objectives	2-1
3.0	Water Resource Inventory and Assessment	3-1
3.1	Introduction	3-1
3.2	Watershed Setting	3-1
3.3	Water Resources	3-1
3.4	Geology/Topography	3-2
3.5	Climate and Precipitation	3-3
3.5.1	Climate	3-3
3.5.2	Precipitation	3-4
3.6	Soils	3-4
3.6.1	Soil Series	3-5
3.6.2	Hydric Soils	3-10
3.6.3	Soil Erodibility	3-11
3.6.4	Hydrologic Soil Groups	3-12
3.7	Watershed Jurisdictions	3-14
3.8	Watershed Demographics	3-22
3.9	Land Use	3-25
3.9.1	Historical Land Use	3-24
3.9.2	Existing Land Use	3-25
3.9.3	Future Land Use/Land Cover Projections	3-27
3.9.4	Land Use Impact on the Watershed	3-29
3.9.5	Impervious Area Analysis	3-30
3.10	Cultural Resources	3-33
3.11	Transportation	3-34
3.11.1	Existing Transportation Network	3-35
3.11.2	Proposed Transportation Projects	3-35
3.12	Natural Resources	3-35
3.12.1	Illinois Natural Area Inventory Sites	3-35
3.12.2	Forest Preserve and Parks	3-36
3.12.2.1	Municipal Parks	3-36

3.12.2.2	Forest Preserve District of Kane County	3-37
3.12.2.3	DeKalb County Forest Preserve District	3-38
3.12.3	Pedestrian Trails	3-38
3.12.4	Threatened and Endangered Species	3-39
3.12.5	Wetlands	3-39
3.12.6	Potential Restoration Sites	3-42
3.12.7	Groundwater in the East Branch South Branch Kishwaukee River Watershed	3-44
3.12.8	Agricultural Best Management Practices	3-45
3.13	Natural Drainage System	3-46
3.13.1	Stream Flow/Discharge	3-46
3.13.2	Watershed Hydrology and Hydraulics	3-47
3.13.3	Flow Paths	3-48
3.13.4	Channel Conditions	3-51
3.13.5	Hydraulic Structures	3-53
3.13.6	Instream and Riparian Habitat Assessment	3-53
3.13.6.1	INHS and IDNR Resource Data	3-53
3.13.6.2	Data Collected by DeKalb County	3-55
3.13.6.3	Data Collected as part of the Watershed Planning Process	3-55
3.14	Water Quality	3-59
3.14.1	State of Illinois Reporting	3-60
3.14.2	Available Chemical and Physical Water Quality Monitoring	3-61
3.14.3	IEPA Permit Programs	3-66
3.14.4	Nonpoint Source Pollution	3-69
3.14.5	Summary of Water Quality Assessment	3-77
3.15	Floodplain and Flood Hazard	3-78
3.15.1	Floodplain	3-78
3.15.2	Flooding and Drainage Problems	3-79
3.15.3	Constructed Drainage System	3-80
3.15.4	Problem Areas Identified By Watershed Stakeholders	3-81
3.16	Critical Areas	3-89
3.16.1	Critical SMUs	3-89
3.17	Summary and Conclusions	3-89
4.0	Watershed Best Management Practice and Solutions Toolbox	4-1
4.1	Planning Process BMPs	4-1
4.2	Stormwater BMPs	4-1
4.3	Landscaping BMPs	4-2
4.4	Flood Reduction BMPs	4-3
5.0	Prioritized Action Plan	5-1
5.1	Introduction	5-1
5.2	Implementation Partners	5-2
5.3	Programmatic Action Plan	5-7
5.3.1	Programmatic Action Plan by Goal	5-7
5.3.2	Regulatory Ordinance Review and Recommendations	5-26
5.4	Site Specific Action Plan	5-29
5.4.1	Stream Corridor Restoration Projects	5-36
5.4.2	Digital Terrain Modeling and/or Hydraulic and Hydrologic Study	5-38
5.4.3	Stream Corridor Management Programs	5-38
5.4.4	Wetland Creation/Restoration and Native Landscaping Restoration	5-39
5.4.5	Urban Projects	5-39
5.4.6	Wastewater Treatment Polishing Wetlands	5-42
5.4.7	Other Projects	5-42
5.4.8	Agricultural Projects/Practices	5-43

5.5	Water Quality Monitoring Plan	5-51
5.6	Education and Outreach Plan	5-55
5.6.1	Education and Outreach Strategy	5-55
5.6.2	Target Audience	5-55
5.6.3	Partner Organizations	5-56
5.6.4	Evaluating the Education and Outreach Plan	5-56
6.0	Plan Implementation and Evaluation	6-1
6.1	Plan Implementation Roles Strategy	6-1
6.2	Pollutant Load Reductions and Targets	6-1
6.2.1	Estimating Pollutant Load Reductions	6-3
6.3	Plan Implementation Schedule	6-9
6.4	Funding Sources	6-10
6.5	Plan Monitoring and Evaluation	6-10
6.5.1	Monitoring Plan Implementation	6-10

List of Figures

Figure 1-1	What is a watershed?
Figure 1-2	Hydrologic Cycle
Figure 3-1	General Watershed Location
Figure 3-2	Watershed Map
Figure 3-3	Digital Elevation Model
Figure 3-4	Dominate Soils in the East Branch South Branch Kishwaukee River Subwatershed
Figure 3-5	Dominate Soils in the Union Ditch Subwatershed
Figure 3-6	Dominate Soils in the Virgil Ditch Subwatershed
Figure 3-7	Hydic Soils
Figure 3-8	Highly Erodible Soils
Figure 3-9	Hydrologic Soil Group
Figure 3-10	Jurisdictions
Figure 3-11	Historical (GIRAS) Land Use
Figure 3-12	Existing Land Use
Figure 3-13	Future Land Use
Figure 3-14	Historical Places/Districts
Figure 3-15	Transportation Network
Figure 3-16	Illinois Natural Area Inventory Sites
Figure 3-17	Forest Preserves and Parks
Figure 3-18	Recreational Trails
Figure 3-19	Threatened and Endangered Species Locations
Figure 3-20	Wetlands
Figure 3-21	High Quality Wetlands in Kane County
Figure 3-22	Potential Wetland Restoration Sites
Figure 3-23	Stormwater Management Units in the East Branch South Branch Kishwaukee River Subwatershed
Figure 3-24	Stormwater Management Units in the Union Ditch Subwatershed
Figure 3-25	Stormwater Management Units in the Virgil Ditch Subwatershed
Figure 3-26	Stream Reaches in the East Branch South Branch Kishwaukee River Subwatershed
Figure 3-27	Stream Reaches in the Union Ditch Subwatershed
Figure 3-28	Stream Reaches in the Virgil Ditch Subwatershed

- Figure 3-29** Sampling Sites
Figure 3-30 NPDES Point Sources Discharges for Municipal and Industrial Effluent Locations
Figure 3-31 Floodplain
Figure 3-32 Problem Areas
Figure 3-33 Critical Stormwater Management Units

- Figure 5-1** Site Specific Projects

List of Tables

- Table 1-1** Summary of DCSWC Activities
- Table 3-1** Soil Series in the East Branch South Branch Kishwaukee River Subwatershed
Table 3-2 Soil Series in the Union Ditch Subwatershed
Table 3-3 Soil Series in the Virgil Ditch Subwatershed
Table 3-4 Percent Coverage of hydric and non-hydric soils in the East Branch South Branch Kishwaukee River Watershed
Table 3-5 Highly erodible soils in the East Branch of the South Branch Kishwaukee River Watershed
Table 3-6 Hydrologic Soil Groups and their corresponding attributes in the East Branch South Branch Kishwaukee River Creek watershed
Table 3-7 Hydrologic Soil Groups including acreage and percent of subwatershed
Table 3-8 County, municipal, and township jurisdictions in the East Branch of the South Branch Kishwaukee River Watershed
Table 3-9 Key Watershed Stakeholders
Table 3-10 2010 and 2040 Forecast Data for Kane and DeKalb Counties
Table 3-11 2010 and 2040 Forecasts Data for Each Municipality in the Watershed
Table 3-12 2010 Data for the East Branch South Branch Kishwaukee River Watershed
Table 3-13 Median Age and Income by Jurisdiction
Table 3-14 Geological Survey (USGS) GIRAS Land Use and Land Cover for the East Branch South Branch Kishwaukee River Watershed
Table 3-15 Existing Land Use for the East Branch South Branch Kishwaukee River Watershed
Table 3-16 Projected Land Use for the East Branch South Branch Kishwaukee River Watershed
Table 3-17 Summary of MWRDGC Impervious Cover Percentages
Table 3-18 Impervious Area Analysis Results in the East Branch South Branch Kishwaukee River Subwatershed
Table 3-19 Impervious Area Analysis Results in the Union Ditch Subwatershed
Table 3-20 Impervious Area Analysis Results in the Virgil Ditch Subwatershed
Table 3-21 National Register of Historic Places in the East Branch South Branch Kishwaukee River watershed
Table 3-22 Transportation Related Pollutants
Table 3-23 Natural Areas and Recreational Parks in the East Branch South Branch Kishwaukee River watershed
Table 3-24 Threatened and Endangered Species
Table 3-25 Kane County HFV and HHQ wetlands
Table 3-26 Kane County significant functional wetlands
Table 3-27 Potential Restoration Sites in the East Branch South Branch Kishwaukee River Watershed
Table 3-28 WRP Easements in DeKalb and Kane Counties

Table 3-29	Active and Completed EQIP Contracts in DeKalb County
Table 3-30	Active and Completed EQIP Contracts in Kane County
Table 3-31	1988 Discharge Summary
Table 3-32	SMUs in the East Branch South Branch Kishwaukee River Subwatershed
Table 3-33	SMUs in the Union Ditch Subwatershed
Table 3-34	SMUs in the Virgil Ditch Subwatershed
Table 3-35	Documented Fish Species in the East Branch South Branch Kishwaukee River Subwatershed (IDNR)
Table 3-36	Documented Mussel Species in the East Branch South Branch Kishwaukee River Subwatershed (IDNR)
Table 3-37	IBI and Stream Rating for the Virgil Ditch System (IDNR)
Table 3-38	Data Collection Sites in East Branch South Branch Kishwaukee River Watershed
Table 3-39	QHEI Components
Table 3-40	QHEI Scores for the Sampled Sites
Table 3-41	Narrative Ranges Assigned to QHEI Scores
Table 3-42	Narrative Ranges for the Sampled Sites
Table 3-43	Macroinvertebrate Data Collected by NIU
Table 3-44	Fish and Amphibians Noted by NIU
Table 3-45	Unuionid Clams/Mussel Bed Data Collected by NIU
Table 3-46	Categorization of 303(d) Listed Waters
Table 3-47	NIU Water Quality Sampling Results for the East Branch South Branch Kishwaukee River Watershed
Table 3-48	NPDES Point Source Dischargers
Table 3-49	Illinois EPA Water Quality Standards
Table 3-50	Estimated Pollutant Loading by Subwatershed in the East Branch of the South Branch Kishwaukee River watershed (mg/L)
Table 3-51	Estimated Pollutant Loading by Subwatershed in the East Branch of the South Branch Kishwaukee River watershed (pounds/year)
Table 3-52	Estimated Annual Pollutant Load by Land Use in the East Branch of the South Branch Kishwaukee River watershed
Table 3-53	Levels of pollutant compared to Illinois EPA standards in the East Branch South Branch Kishwaukee River watershed
Table 3-54	Floodplain in the East Branch South Branch Kishwaukee watershed
Table 3-55	Summary of Problems in the East Branch South Branch Kishwaukee River Watershed Stakeholders
Table 3-56	Critical SMUs
Table 3-57	Watershed Impairments, Causes and Sources
Table 5-1	Key Watershed Stakeholders
Table 5-2	Water Quality and Groundwater Programmatic Actions
Table 5-3	Flood Mitigation Programmatic Actions
Table 5-4	Programmatic actions for the improvement of aquatic and wildlife habitat
Table 5-5	Programmatic actions for the development of open space and recreational opportunities
Table 5-6	Programmatic actions for the development of coordination between decision makers and watershed stakeholders
Table 5-7	Programmatic actions for education and outreach
Table 5-8	East Branch South Branch Kishwaukee River Watershed Site Specific Action Plan

Table 5-9	Recommended Acreage of Infiltration-Based BMP
Table 5-10	Targets for agricultural BMPs in the East Branch of the South Branch of the Kishwaukee River Watershed
Table 5-11	Data Collection Sites in East Branch South Branch Kishwaukee River Watershed
Table 5-12	Education and Outreach Action Plan
Table 6-1	Targets and Indicators to meet water quality objectives
Table 6-2	BMP percent pollutant removal efficiencies
Table 6-3	Pollutant Load Reductions for Site Specific BMPs
Table 6-4	Watershed-wide Summary of BMPs
Table 6-5	List of urban/transitional BMPs for reducing pollutant loading
Table 6-6	Plan Implementation Summary Schedule
Table 6-7	Potential Funding Sources

Appendices

Appendix A	DeKalb County Watershed Steering Committee Meeting Minutes
Appendix B	Data Sheets