Chapter 8
Vander Karr Creek Subwatershed Assessment

8.1 Subwatershed Characteristics

The following section provides an overview of the physical characteristics of the subwatershed.

8.1.1 Subwatershed Location

The Vander Karr Creek subwatershed is located in the center of Nippersink Watershed, as shown in Figure 8.1. This subwatershed has an area of 12,231 acres, or 19.11 square miles (9.4% of watershed). The subwatershed is located within southern Hebron Township and northern Greenwood Township. This subwatershed includes not areas that drain directly to Vander Karr Creek, but also includes about 2,300 acres south of the main channel of Nippersink Creek. The northeastern corner of this 2,300 acre area is at the inflow to Wonder Lake, and the northwest corner is at the confluence of Nippersink Creek with the tributaries Vander Karr Creek and Neumann Creek

Figure 8.1 Vander Karr Creek Subwatershed Location Map

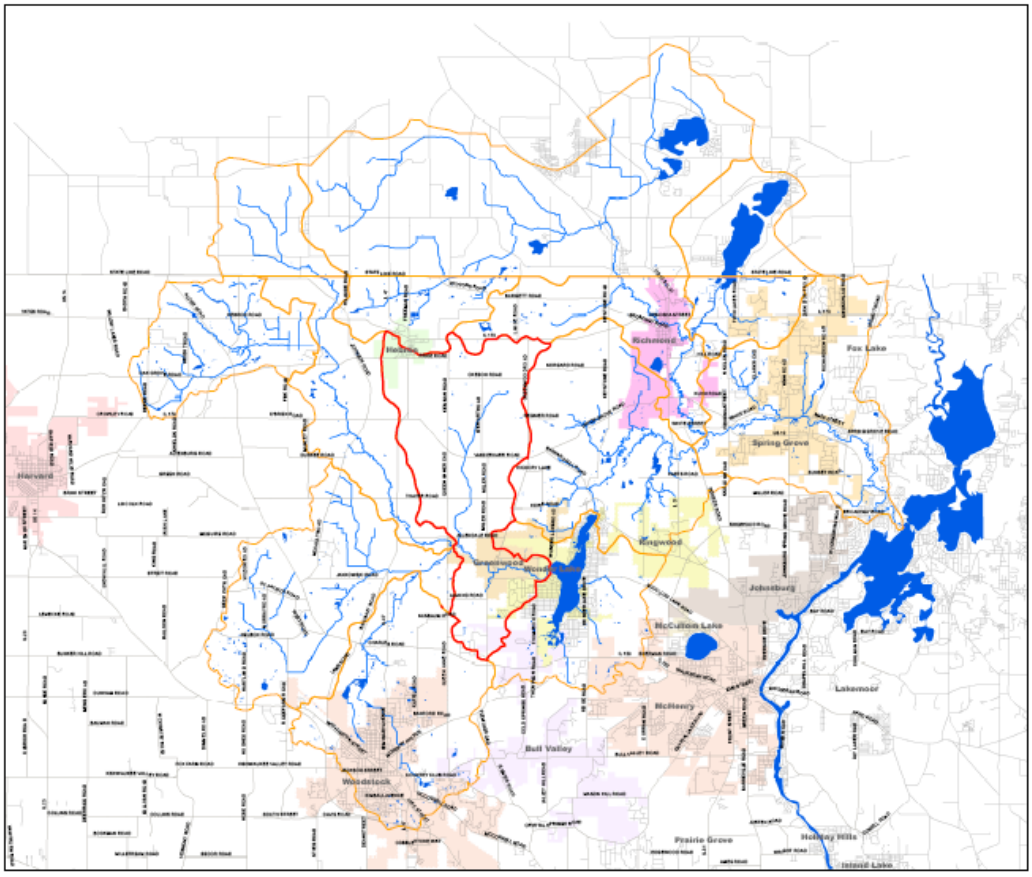
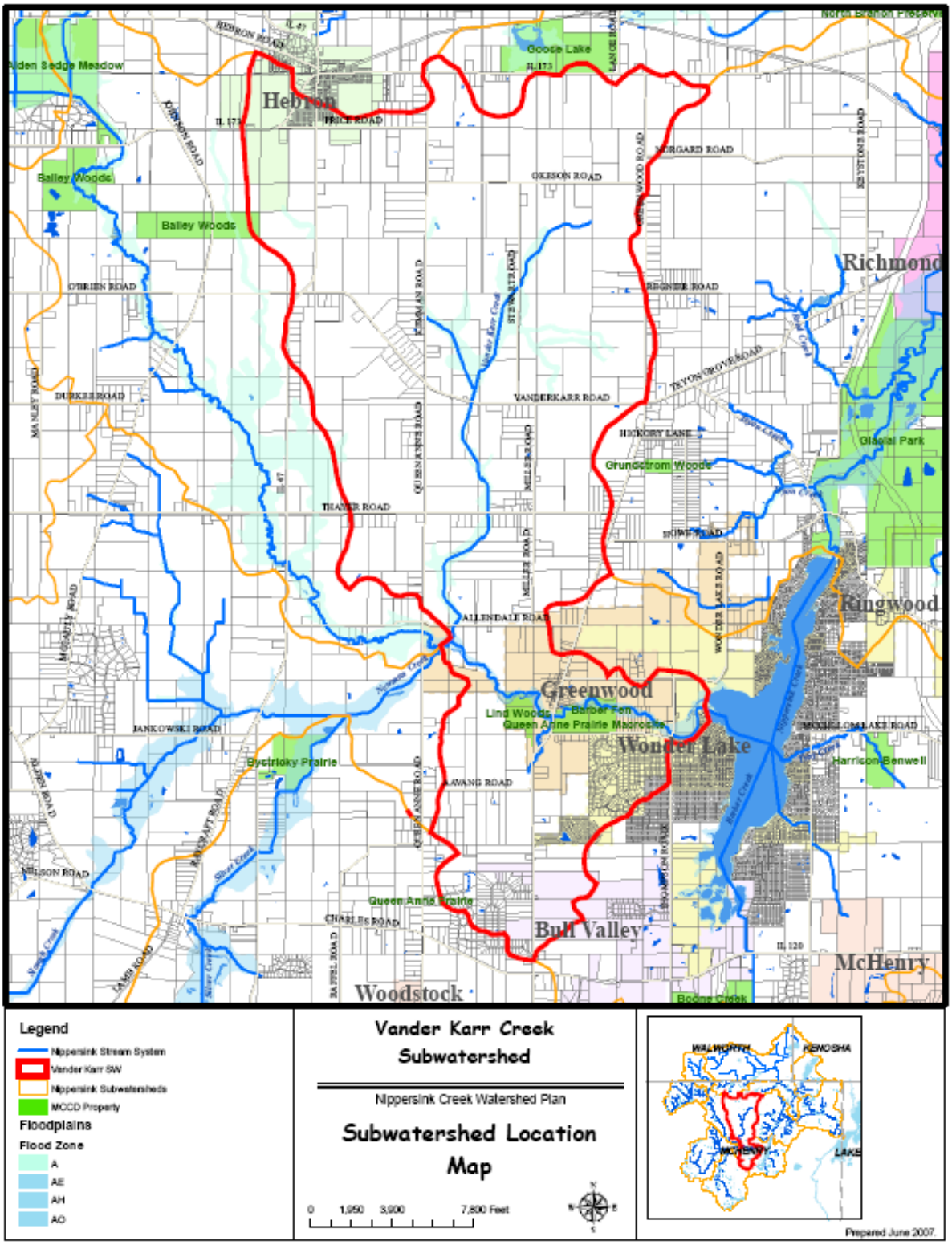


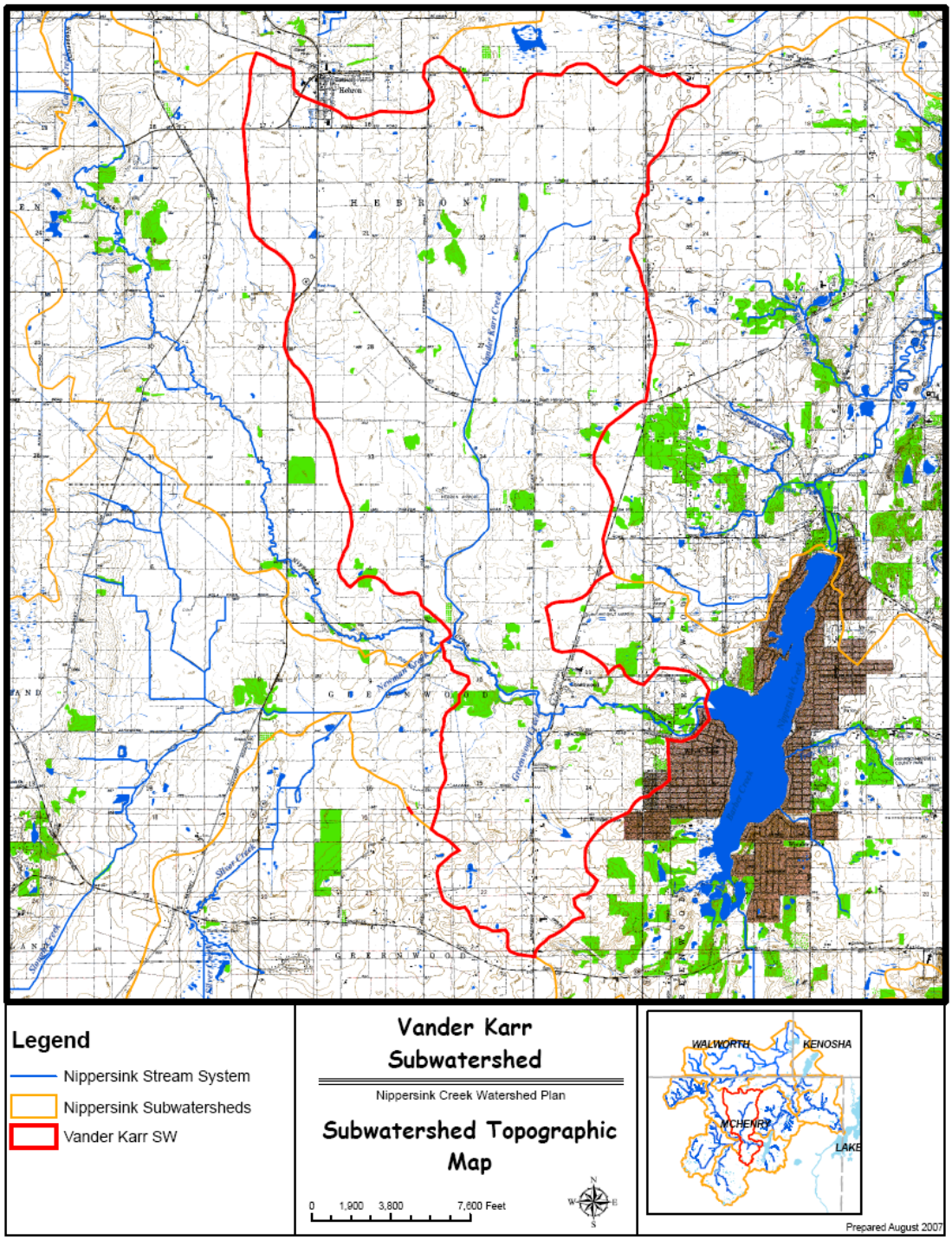
Figure 8.2 Vander Karr Creek Subwatershed Map



8.1.2 Topography & Geology

The topography of the Vander Karr Creek subwatershed is moderately sloping, generally between 2% and 4%. The highest point in the watershed is elevation of 954 feet, found on the southeast side of the Village of Hebron (northeast of Price Road and Illinois Route 47 intersection). The lowest elevation in this subwatershed is 802 feet, where Nippersink Creek flows into Wonder Lake.

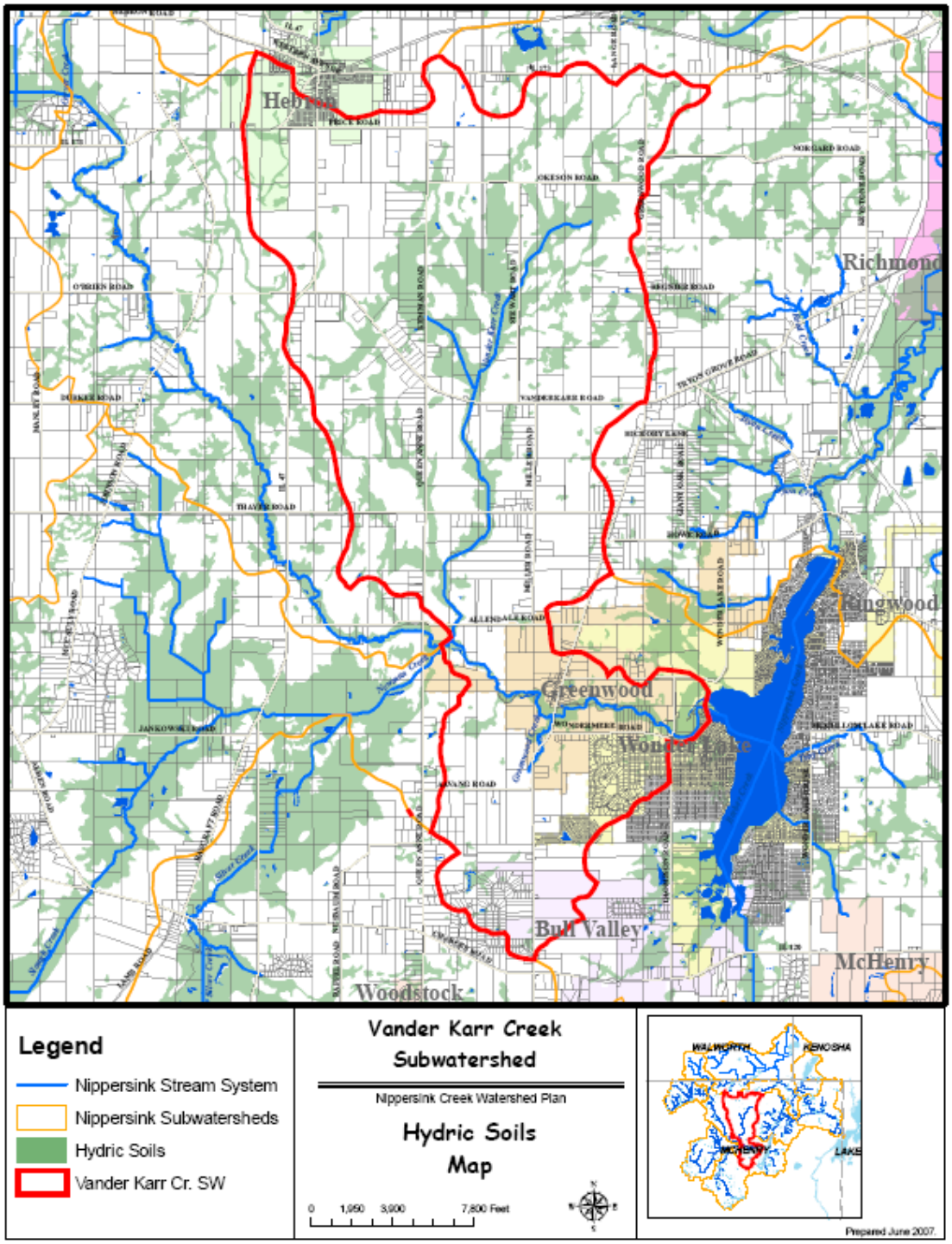
Figure 8.3 USGS Topographic Map of the Vander Karr Creek Subwatershed



8.1.3 Soil Characteristics

The glacial advances across McHenry County resulted in a wide variety of soil associations. Each major grouping of soil associations has potential impact on current and future land uses within the subwatershed. For example, hydric (wetland) soils constitute 2,598 acres, or 21.2% of the 12,231 acre subwatershed, and indicate those areas that contain functional wetlands, or former / degraded wetland areas that could be restored or enhanced.

Figure 8.4 Hydric Soils of the Vander Karr Creek Subwatershed



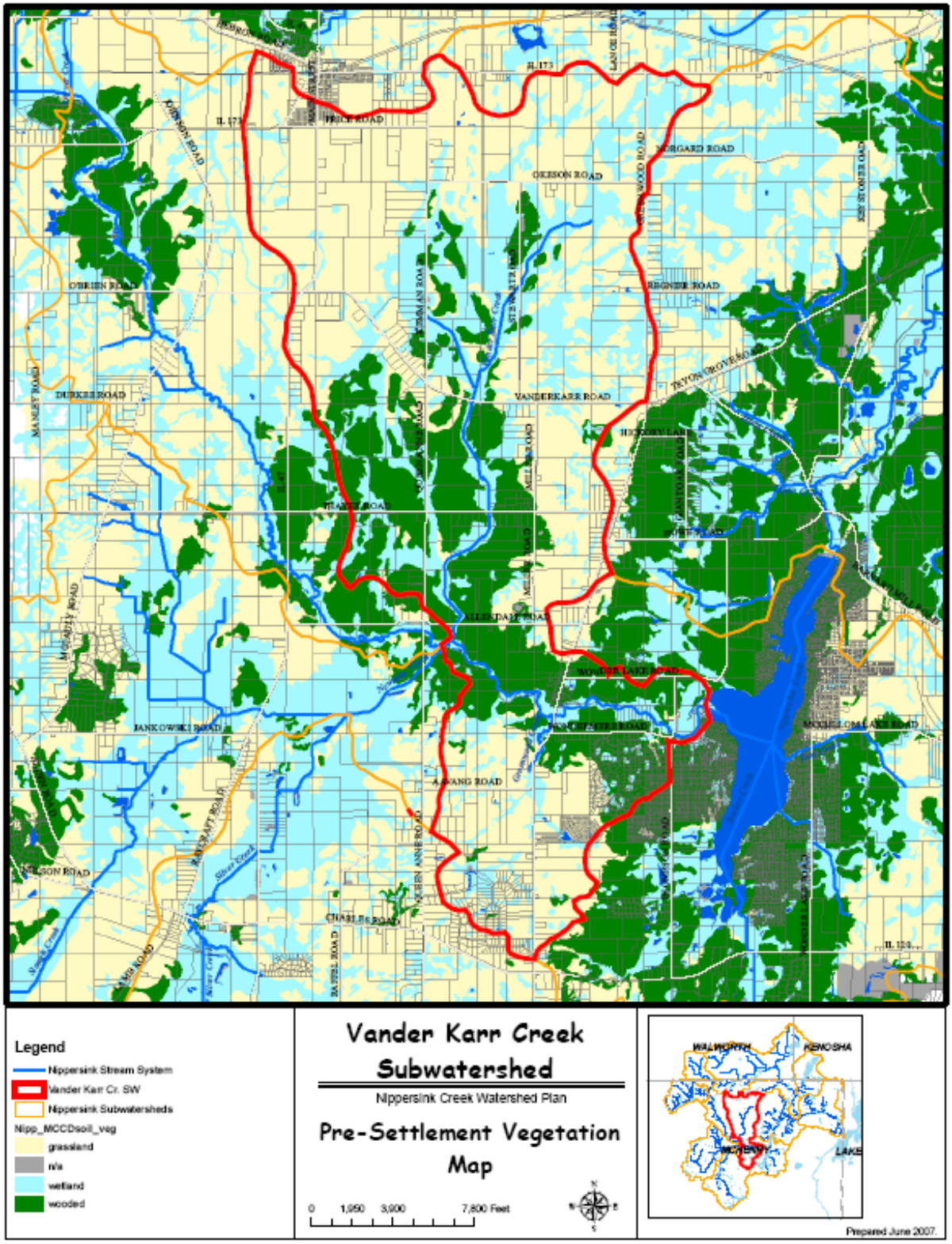
8.1.4 Pre-settlement Vegetation

To guide future land management or restoration efforts, it is important to recognize the native plant communities that naturally evolved subsequent to the last glacial advances. Prior to European settlement in the 1830's, the Vander Karr Creek Subwatershed was predominantly woodland, as described in Table 8.1, and depicted in Figure 8.5. These woodlands, largely comprised of oak / hickory woodland and savannah, were bisected with wetlands and grassland along the drainageways.

Table 8.1 Pre-Settlement Land Cover Conditions of the Vander Karr Creek Subwatershed

Land Cover Type	Area (acres)	Percent of Subwatershed
Grassland	1,848	23%
Wooded	3,535	45%
Wetland	1,586	20%
n/a	914	12%

Figure 8.5 Pre-settlement Vegetation of the Vander Karr Creek Subwatershed



8.1.5 Subwatershed Drainage Features

Streams

There are two principal streams in the Vander Karr Creek subwatershed, Vander Karr Creek and a portion of main channel of Nippersink Creek.

The section of Nippersink Creek in this subwatershed begins at the confluence of Nippersink Creek with Neuman Creek (at the end of the Silver and Slough Creek subwatersheds) and extends eastward to where Nippersink Creek enters Wonder Lake. This 3.6 mile reach of the Nippersink has a very high quality, well vegetated and relatively undisturbed stream corridor. The floodplain is well defined and varies from as narrow as 250 feet to as much as 800 feet, with 15 to 30 foot high slopes at the edge the floodplain.

Vander Karr Creek is a 5.5 mile long agricultural stream that extends from the confluence with Nippersink Creek near Allendale and Queen Anne Road northward to the farm fields on the south side of Okeson Road, west of Greenwood Road. For a small tributary stream, the channel is relatively flat, with slopes around 8 to 9 feet per mile. All but the first 900 feet of the stream is channelized (97%), which is of little surprise given the intense agricultural land uses in the subwatershed.

Manmade Drainage Systems

Analysis of land uses and aerial photography indicates that the majority of the subwatershed is drained using a system of agricultural open channels and road-side swales. Areas containing storm sewers are located at the far north end of the subwatershed (Hebron area – 80 acres) and in the extreme southeast corner of the subwatershed (south of Wondermere Road – about 360 acres). Areas drained using storm sewers and stormwater detention basins represent less than 4% of the subwatershed.

Agricultural Tile Systems

Due to the predominantly agricultural nature of the subwatershed, it is likely that there many functioning underground drain tile systems remaining in the subwatershed, particularly in the western half of the subwatershed. Historically, these were the areas that had poor drainage characteristics, but that farmers could successfully convert to agricultural usage by the installation of agricultural drain tile systems.

Identifying agricultural drain tile networks is important in watershed planning because current local flooding and drainage problems can often be linked to damage or age-related failure of drain tile systems. From a watershed preservation / restoration perspective, it is important to identify functional drain tile systems to determine opportunities for their removal or reconfiguration for the purposes of restoring valuable wetland habitat, and water quality benefits. It is probable that many of the depressional and low lying areas in the subwatershed that are now drained by tile systems were once wetland and wet prairie ecosystems that supported very diverse habitats.

8.1.6 Population

The use and analysis of population data in watershed planning is critical because there is a direct correlation between the number of people residing in a watershed, and the degree of impacts to the quality and quantity of the watershed's natural resources. The Illinois State Water Survey performed an analysis of the US Census data from 1990 and 2000 for the subwatersheds in the Fox River. In the Nippersink Creek Watershed, this analysis combined the Vander Karr Creek and Slough Creek subwatersheds into one unit. There the population data are really the sum total for both of these subwatersheds in this report. The combined population for the Vander Karr and Slough Creek subwatersheds in 1990 was 2,876. In the year 2000 US Census, the population in these two subwatersheds increased to 3,306 (15% increase).

8.1.7 Land Cover

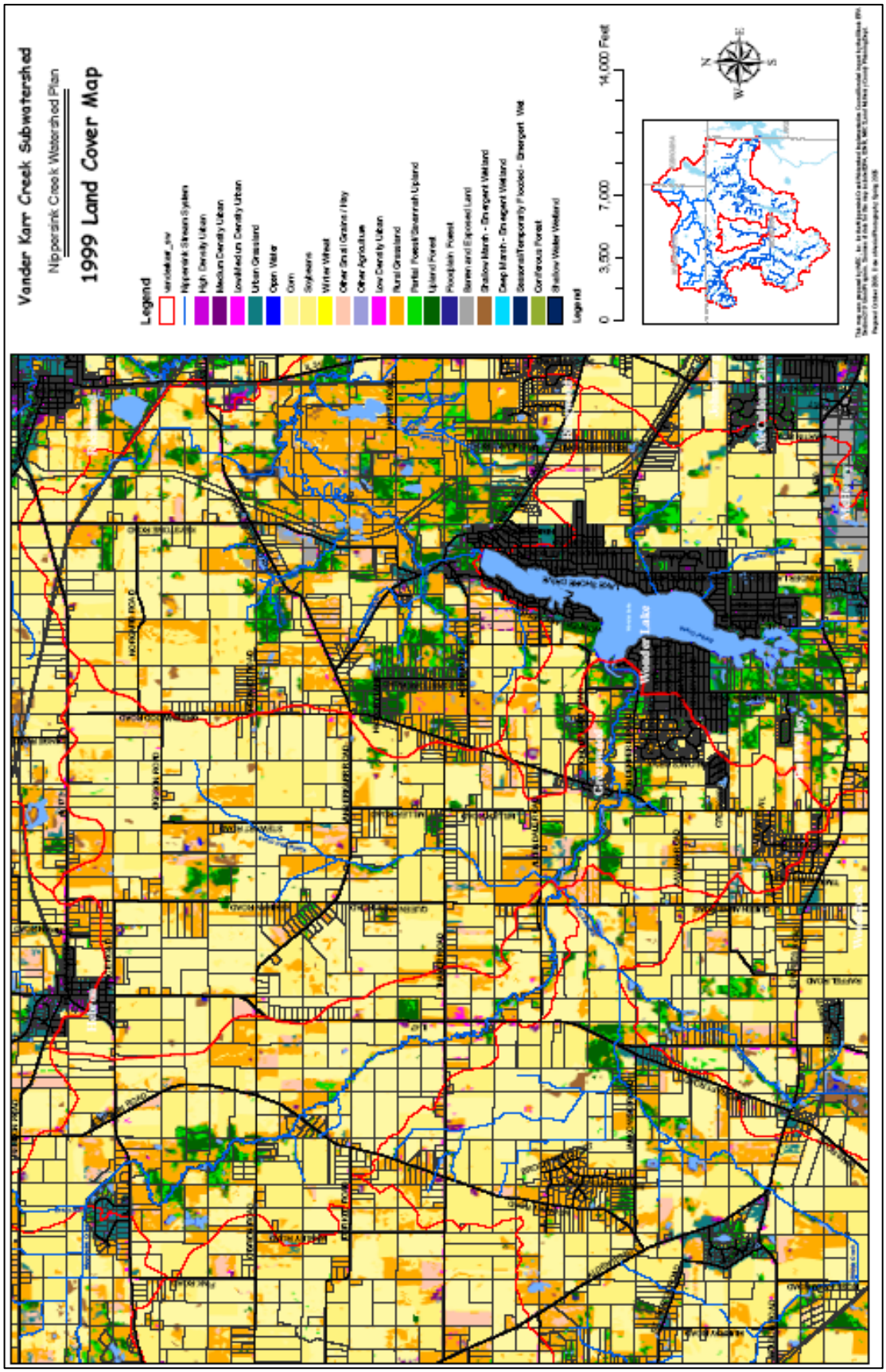
Often, the terms Land Cover and Land Use are used interchangeably. However, there are differences. Land Cover refers to the vegetation, structures, or other features that cover the land. On the other hand, Land Use (as discussed in Section 8.1.8) refers to how land is used by humans.

Land cover data for the Nippersink Creek Watershed is available from the Illinois Department of Natural Resources using LANDSAT data collected between 1998 and 1999. The dominant land cover, according to this data, was rural grasslands and agricultural row crops (91%). Urban landscapes accounted for roughly 2.7% of the Vander Karr Creek subwatershed area, while wooded areas and wetlands account for an additional 6.3% of the subwatershed.

Table 8.2 1999 Land Cover for the Vander Karr Creek Subwatershed

Land Cover Description	Total Acres	Percent of Subwatershed
Barren & Exposed Land	10.4	0.1%
Corn, Soybeans, Other Small Grains & Hay	8,542.4	69.8%
Winter Wheat	0.5	0.0%
Rural Grassland	2,562.3	20.9%
Low Density Urban	113.1	0.9%
Medium Density Urban	66.7	0.5%
High Density Urban	6.5	0.1%
Urban Grassland	148.5	1.2%
Shallow Marsh – Emergent Wetland	70	0.6%
Shallow Water Wetland	0	0.0%
Partial Forest /Savannah Upland	249.8	2.0%
Upland Forest	418.5	3.4%
Floodplain Forest	31.9	0.3%
Deep Marsh / Emergent Wetland	1.11	0.0%
Open Water	9.5	0.1%
TOTAL	**12,231.21**	**100.0%**

Figure 8.6 **1999-2000 Land Cover Map for the Vander Karr Creek Subwatershed**



8.1.8 Land Use / Existing Watershed Development

According to the 2005 McHenry County Land Use / Zoning map, 87% of the subwatershed is zoned for agricultural use, while about 13% is either already developed or zoned for development in the future. Only 0.5% is classified as open space.

Table 8.3 McHenry County 2005 Land Use in the Vander Karr Creek Subwatershed

Land Use	Total Acres	Percent of Subwatershed
Vacant	0.01	0.0%
Vacant; Zoned Residential	201.6	1.6%
Vacant; Zoned Commercial	0.22	0.0%
Vacant; Zoned Office	0	0.0%
Vacant; Zoned Industrial	0	0.0%
Agricultural	10,655.3	87.1%
Single Family Residential	872.5	7.1%
Multi-Family Residential	1.15	0.0%
Commercial	7.5	0.1%
Office	0	0.0%
Industrial	6.5	0.1%
Mining	0	0.0%
Open Space	63.1	0.5%
Institutional	59.8	0.5%
Right of Way	363.3	3.0%
TOTAL	**12,231**	**100.0%**

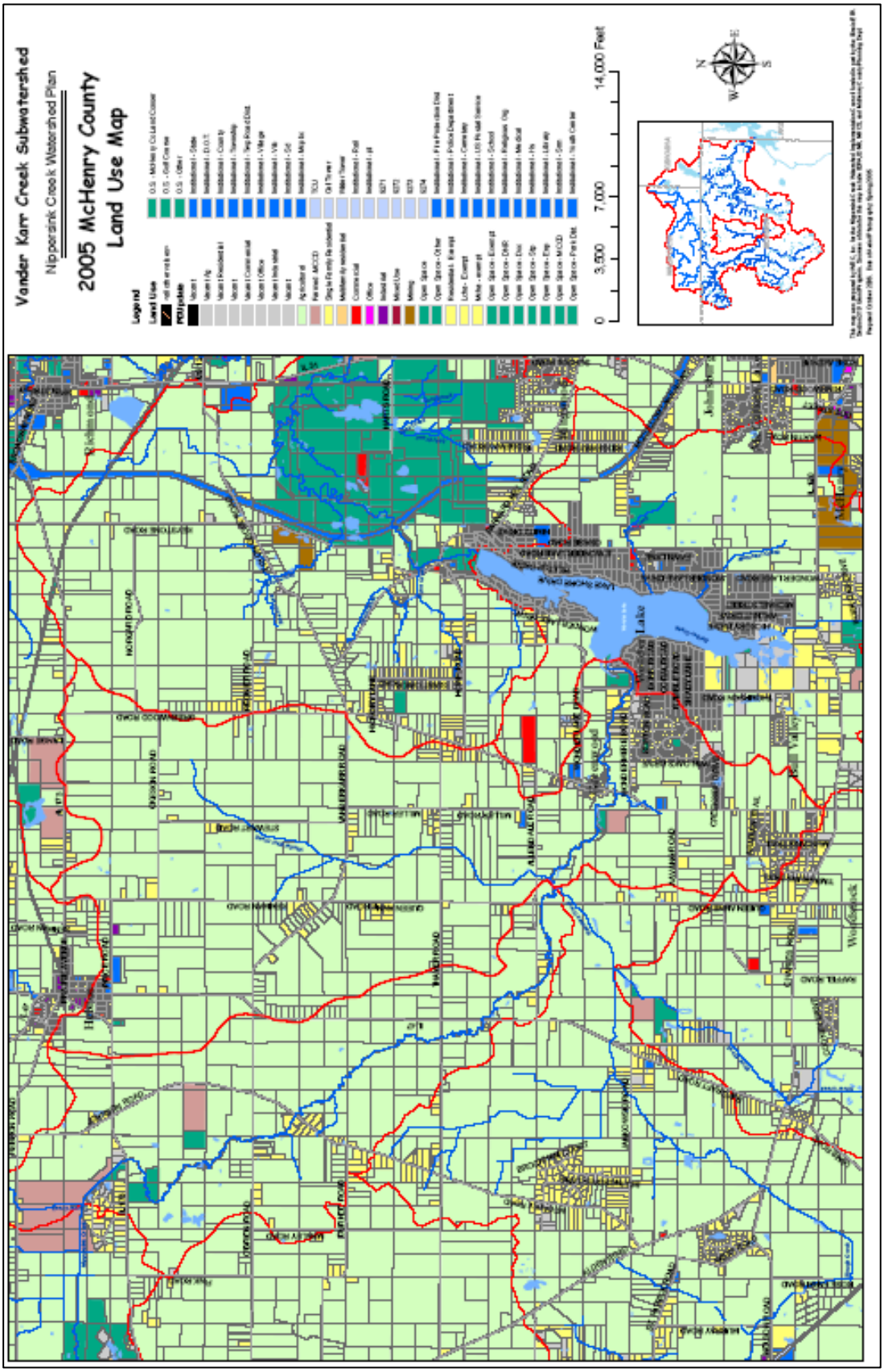
Development in the subwatershed has historically occurred through unincorporated residential development, although this subwatershed is currently experiencing development growth through municipal annexations by the Village of Greenwood.

Table 8.4 Municipal Areas in the Vander Karr Creek Subwatershed

Municipality	Total Acres	Percent of Subwatershed
Village of Greenwood	899	7.4%
Village of Wonder Lake	474	3.9%
Village of Hebron	428	3.5%
Village of Bull Valley	234	1.9%
Unincorporated McHenry County	10,195	83%

There are 43.7 miles of roads in the subwatershed, which equates to more than 148 acres of impervious cover (roadway pavement only – excludes parking lots, sidewalks, and driveways).

Figure 8.7 2005 McHenry County Land Use Map for the Vander Karr Creek Subwatershed



Point Source Discharges

There are no verified point source discharges in the Vander Karr Creek subwatershed.

8.1.9 Natural Resources

McHenry County Conservation District Properties

There are five McHenry County Conservation District properties in the subwatershed, totaling about 187.9 acres, or 1.5% of the Vander Karr subwatershed area.

Table 8.5 MCCD Properties in the Vander Karr Creek Subwatershed

Name	Area in SW (acres)	Total MCCD Property Area
Lind Woods	57.6	
Goose Lake	12.9	269.8
Barber Fen	18.1	
Bailey Woods	14.6	
Queen Anne Prairie Macrosite	84.7	
Total	**187.9**	

Other Publicly Protected Land

Table 8.6 Other Publicly Protected Land in the Vander Karr Creek Subwatershed

Name	Area (acres)	# of Parcels
Greenwood Township	8.0	1
Hebron/Alden/Greenwood Fire Prot. Dist.	4.0	3
Village of Hebron	6.0	5
Village of Wonder Lake	13.3	2
Total	**31.4**	

McHenry County Natural Areas Inventory

There are four McHenry County Natural Area Inventory (MCNAI) Sites within the subwatershed, representing about 2.4% of the entire subwatershed.

Table 8.7 McHenry County Natural Areas Inventory Sites in the Vander Karr Creek Subwatershed

MCNAI Site ID	Name	Area in Subwatershed (acres)	Total MCNAI Site Area	Ownership
GRE01	Aavang-Lind Woods	87.9	92.3	Public / Private
GRE05	Greenwood Fen	145.9	145.9	Public / Private
GRE13	Wonder Lake Sedge Meadow	30.5	79.0	Private
HEB08	Vander Karr Prairie	31.6	31.6	Private
	TOTAL	**296.0**		

Wetlands

McHenry County completed an Advanced Identification (ADID) Wetland Study in 2003. This study identified a total of 102 wetlands, totaling 639.4 acres, or 5% of the Vander Karr subwatershed. Of these wetlands, 312.1 acres (49%) were determined to be of High Quality.

Table 8.8 Mapped Wetlands in the Vander Karr Creek Subwatershed

ADID Code	Wetland Type	Number of Wetlands	Total Area (acres)
HFV	High Functional Value	8	88.1
HQW	High Quality Wetland	3	312.1
FW	Farmed Wetland	44	106.1
L	Lake	2	6.5
W	Other Wetlands (lower quality)	45	126.6
	TOTAL	**102**	**639.4**

Threatened & Endangered Species

Threatened and Endangered (T&E) species data were extracted from T&E data records documented in the McHenry County Natural Areas Inventory Database. The data were collected by the McHenry County Conservation District during field studies undertaken at the subwatershed Natural Area Inventory Sites. The data indicate that there are at least three threatened or endangered animal species living in the subwatershed.

Table 8.9 Threatened and Endangered Species in the Vander Karr Creek Subwatershed

Common Name	Scientific Name	Type	Status	NAI Site
Pale Vetchling	Lathyrus ochroleucus	Plant	State Threatened	GRE01
Nodding Trillium	Trillium cernuum	Plant	State Endangered	GRE01 GRE05
Blanding's Turtle	Emydoidea blandingii	Reptile	State Threatened	GRE13

Source: McHenry County Natural Areas Inventory Database, 2005

Fishery

According to a 2005 McHenry County Natural Areas Inventory, the MCCD has sampled Vander Karr Creek and found ten fish species present, including two pollution-intolerant species (Blacknose Dace & Fantail Darter).

Mussels

According to the 2005 McHenry County Natural Areas Inventory, the MCCD has sampled Vander Karr Creek and found no mussels inhabiting the stream.

Existing Greenways

There are no formal greenways in the Vander Karr Subwatershed,

8.2 Analysis of Subwatershed Data and Problem Identification

8.2.1 Water Quality Data & Identified Problems

The Illinois Environmental Protection Agency (IEPA) is tasked with assessing the quality of the surface water resources of Illinois. The IEPA has determined Nippersink Creek's designated uses are:

- Aquatic Life
- Fish Consumption
- Primary Contact
- Secondary Contact
- Aesthetic Quality

The IEPA periodically produces a 303(d) list, which identifies waterways that are not achieving certain designated uses. In the 2006 IEPA 303(d) list, Nippersink Creek is identified as being in Full Support of its Aquatic Life Designated Use, which is notable for a stream in northeastern Illinois.

However, Nippersink Creek was also determined to be Non-supporting of its Primary Contact Designated Use, due to excessive levels of fecal coliform. This pollutant, associated with human and animal waste, was listed as coming from an unknown source. The IEPA also identified fish consumption, secondary contact and aesthetic quality as designated uses for Nippersink Creek, although the ratings for these uses were classified as "not assessed".

The quality of the Vander Karr Creek itself is unknown, as the IEPA does not sample this small tributary and it appears that no local agencies monitor the quality of Vander Karr Creek either.

The Fox River Watershed Monitoring Network (FRWMN), administered by the not-for-profit group, *Friends of the Fox River*, maintains four volunteer stream monitoring sites on Nippersink Creek, however there are no established FRWMN monitoring stations on the Vander Karr Creek.

8.2.2 Flooding Problems

At the time of this writing, no data were provided by the County or municipalities regarding existing flooding problems. Analysis of available floodplain information suggests that there are less than 10 homes in the 100 Year Floodplain, however, it is important to note that Vander Karr Creek has not had its floodplain accurately calculated (shown as a Zone A Unstudied Floodplain on the current FEMA map)

8.2.3 Projected Development & Growth

Development in the Vander Karr subwatershed is expected to be moderate, depending largely on the rate of municipal annexations promoted through the Village of Greenwood in the south and the Village of Hebron in the north. There is currently over 200 acres of agricultural land zoned for residential development, according to the McHenry County Land Use Map.

8.2.4 Natural Area Protection / Preservation Issues

McHenry County Natural Area Inventory Sites

In the Vander Karr Creek subwatershed, about 27% of the McHenry County Natural Area Inventory (MCNAI) sites are protected through public ownership (80 of 296 acres on MCCD property).

Aavang-Lind Woods (MCNAI GRE01) is a 90.3 acre natural area located along Nippersink Creek just west of downtown Greenwood. The site features a neutral seep and spring, dry mesic silt loam woodland, and mesic silt loam woodland. The MCNAI database indicates that this site is currently impaired by streambank erosion, upstream impoundment, brush encroachment, agricultural runoff, and grazing. This site is only partially protected by the MCCD and partially as an Illinois Nature Preserve on private property.

Greenwood Fen (MCNAI GRE05) is a 146 acre natural area located along Nippersink Creek east of Greenwood Road (and parallel with Wondermere Road). The site features a well-buffered, meandering, gravel bottom stream, graminoid fens, a permanent pond, sedge meadows, a streamside marsh, and a mesic silt loam prairie. The MCNAI database indicates that this site is currently impaired by aquatic invasives, brush encroachment, Reed Canary Grass, grazing, and development. This site is only partially protected by the MCCD and by the privately-held Barber Fen, an Illinois Nature Preserve site.

About half of the Wonder Lake Sedge Meadow (MCNAI GRE13) is located in the Vander Karr Subwatershed (30 of 79 acres). This MCNAI site features a graminoid fen and is threatened by invasive species (Reed Canary Grass) and alterations to the water table. The site is entirely on private property with no known protection in place to preserve the natural features.

Vander Karr Prairie (MCNAI HEB08) is located in the northern region of the subwatershed between Kenman Road and Stewart Road. This 31.6 acre site contains a wet silt loam prairie and at least two sedge meadow communities. The site is impacted by alterations to the water table, brush encroachment, and invasive species (Reed Canary Grass).

8.3 Subwatershed-Specific Recommendations to Protect Water Resources

The following section discusses the Best Management Practices (BMP's) identified for this subwatershed that should be implemented to address existing or potential water quality impairments. The location of each recommended BMP project is presented in Figure 8.8.

Pollutant Loading Modeling, as discussed in Chapter 3, identified current and future pollutant loadings, based upon land use, soils, slopes, etc., and quantified these loadings. The results of this Pollutant Loading modeling were then used to identify the types of BMP's that should be implemented to create a loading reduction of those pollutants. Table 8.10 presents a summary of the recommended BMP projects, as well as the expected pollutant loading reductions expected if the BMP's are implemented, and function as intended.

Table 8.11 presents detailed cost and logistical information on each of the recommended BMP projects. Below is a summary list of recommendations for the subwatershed to help stakeholders and decision makers meet the Goals and Objectives set forth for Nippersink Creek. Background information regarding how each type of recommendation addresses watershed concerns and/or impairments (existing or future) can be found in Chapter 4.

Type:	Education / Outreach; Regulatory; Site Restoration; Monitoring; Permanent Habitat Protection, Water Quality
Target Goals:	Which watershed plan goals the recommendation is intended to address.
Initial Implementation Cost:	The initial cost, in 2007 dollars to initiate the recommended action, if applicable.
Initial Outreach Cost:	The initial cost, in 2007 dollars to initiate the recommended action, if applicable.
Annual Cost:	The long term expected annual cost (in 2007 dollars) to successfully implementation of the recommendation
Responsible Party:	Identifies the LEAD agency, entity, or landowner who will ultimately have to execute the recommendation. SUPPORTING parties, such as government agencies, grant sources, etc. may also be identified here.
Priority:	A ranking of the BMP recommendations, based upon the nature / urgency of the existing / potential impairment; the availability of willing landowners)/ partners; short-term vs. long-term development pressure; and whether the project is a new effort, or a retrofit of an existing practice.

The project cost estimates contained in this report should be considered preliminary, and are only presented to identify the potential magnitude of cost, from a watershed scale perspective. No site-specific investigation, analysis, or design of any recommended project, from which accurate cost information could be obtained, was completed as part of the preparation of the 2008 Nippersink Creek Watershed Plan.

If a watershed stakeholder decides to apply for grant funding assistance to implement any of the recommended projects presented in this report, they should first undertake any additional studies / research needed to determine an updated / accurate project cost. They should not solely rely on the cost estimates presented in the NCWP report as the basis for their grant request.

Note: The following acronyms for responsible parties identified in Table 8.12 are presented below:

NCWPC	Nippersink Creek Watershed Planning Committee
NRCS	Natural Resource Conservation Service
SWCD	McHenry County Soil and Water Conservation District
MCCD	McHenry County Water Conservation District
TLC	The Land Conservancy of McHenry County
IDOT	Illinois Department of Transportation
IEPA	Illinois Environmental Protection Agency
MCDOT	McHenry County Department of Transportation
MCDEF	McHenry County Defenders

Figure 8.8 Vander Karr Creek Subwatershed Site Recommendations Map

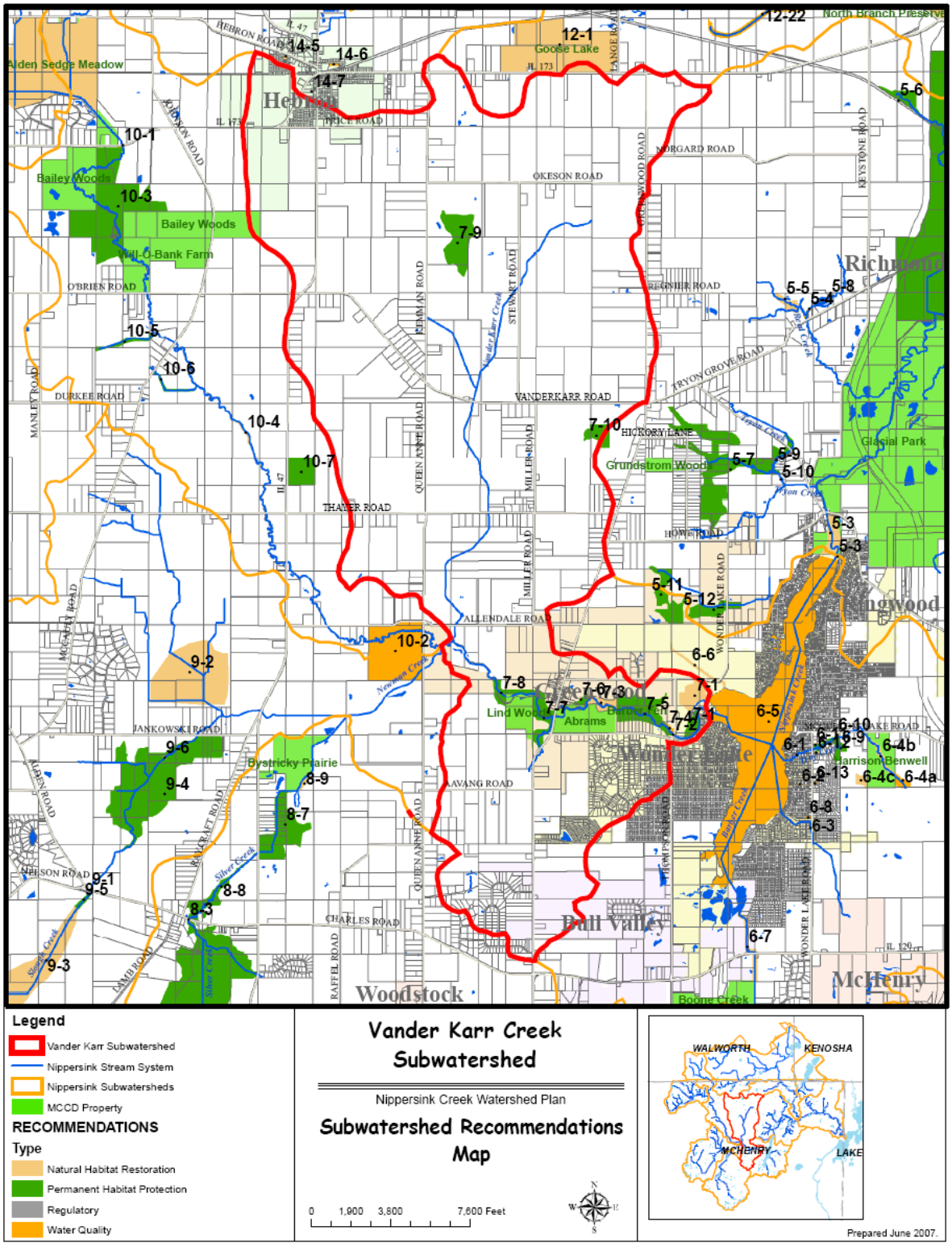


Table 8.11 BMP Selection & Associated Pollutant Load Reduction for the Vander Karr Creek Subwatershed

BMP	Type of BMP	Project Locations**	BMP		Removal Efficiency***			(lbs/year) ****			Percentage Reduction		
			Size	Unit	TN	TP	TSS	TN	TP	TSS	TN	TP	TSS
Natural Habitat Protection	Site-specific	7-1, 7-3	136	acres	30%	35%	60%	760	71	80	1.7	1.9	3.3
Stream Corridor Restoration	Site-specific	7-3	35	acres	53%	51%	88%	346	27	31	0.8	0.7	1.3
Permanent Habitat Protection	Site-specific	7-1, 7-5 to 7-10	97	acres	53%	51%	88%	958	74	86	2.1	2	3.6
Stormwater BMPs	Site-specific	7-2	18	acres	36%	95%	95%	121	25	28	0.3	0.7	1.2
Point Source Control/Monitoring	Site-specific	7-4	1	each	0%	0%	0%	0	0	0	0	0	0
Nutrient Management	Watershed-specific	Subwatershed wide	1,222	acres	70%	28%	-	15,941	510	-	35	14	-
Regulatory*	Watershed-Specific	Subwatershed	1	Water-shed	5%	5%	5%	2,278	182	120	5	5	5
Total								20,404	889	345	44.8	24.4	14.4

*Regulatory programs are assumed to have nominal pollutant reduction rates of 5%.

** Project locations and details are described in the corresponding chapter.

*** TN = total Nitrogen; TP = total Phosphate; TSS = total suspended solids or Sediment.

**** The unit of “TSS” is “Tons/year”.

Table 8.12 Recommended Projects in the Vander Karr Creek Subwatershed

SUB WATERSHED	RECOMMENDATION #	TARGET GOAL	DESCRIPTION	RESPONSIBLE PARTY	ACRES	UNIT COST	INITIAL IMPLEMENTATION COST	INITIAL OUTREACH COST	ANNUAL MAINTENANCE COST	PRIORITY
Vander Karr Creek	7-1	Permanent Habitat Protection	Landowner Outreach to restore ADID High Quality Wetlands; streambank stabilization along east bank of Nippersink Creek; establish Conservation Easements with private landowners	NCWPC / TLC / MCDEF	14.3	$5,000	$71,535	$1,000	$1,431	D
Vander Karr Creek	7-1	Natural Habitat Restoration	Landowner / Government Outreach to restore wetlands in Wonder Lake Sedge Meadow and establish Conservation Easement for MCNAI site protection from future development	NCWPC / VILLAGE OF WONDER LAKE / TLC	32.2	$3,000	$96,450	$1,000	$804	D
Vander Karr Creek	7-2	Water Quality	Government Outreach to install Stormwater BMP's as part of Thompson Road Bridge replacement project	NCWPC / VILLAGE OF WONDER LAKE / MCHENRY DOT			$50,000	$1,000	$2,500	E
Vander Karr Creek	7-3	Natural Habitat Restoration	**MCCD Barber Fen** eroded banks, rock riffle structures, tile removal, 45 acre field restoration of highly erodible	MCCD	18.4	$5,000	$92,035			A
Vander Karr Creek	7-4	Water Quality	Agency Outreach to investigate possible pollution source to Nippersink Creek from debris / junk on private parcel west of Thompson Road north of bridge.	VILLAGE OF WONDER LAKE / MCHENRY COUNTY HEALTH DEPARTMENT / IEPA			$2,500	$500		F
Vander Karr Creek	7-5	Permanent Habitat Protection	Landowner Outreach to create Conservation Easement to protect High Quality ADID Wetland	NCWPC / TLC / MCDEF	64.8	$1,500	$97,257	$1,000	$6,484	C
Vander Karr Creek	7-6	Permanent Habitat Protection	Landowner Outreach to create Conservation Easement to protect High Quality ADID Wetland	NCWPC / TLC / MCDEF	5.1	$1,500	$7,575	$500	$505	C
Vander Karr Creek	7-7	Permanent Habitat Protection	Landowner Outreach to create Conservation Easement to protect High Quality ADID Wetland; stabilize severe erosion on Nippersink Cr 500 ft west of Greenwood Road	NCWPC / TLC / MCDEF	35.2	$3,000	$105,684	$1,000	$3,523	C

Table 8.12 Recommended Projects in the Vander Karr Creek Subwatershed

SUB WATERSHED	RECOMMENDATION #	TARGET GOAL	DESCRIPTION	RESPONSIBLE PARTY	ACRES	UNIT COST	INITIAL IMPLEMENTATION COST	INITIAL OUTREACH COST	ANNUAL MAINTENANCE COST	PRIORITY
Vander Karr Creek	7-7	Permanent Habitat Protection	Landowner Outreach to create Conservation Easement to protect High Quality ADID Wetland; stabilize severe erosion on Nippersink Cr 500 ft west of Greenwood Road	NCWPC / TLC / MCDEF	35.2	$3,000	$105,684	$1,000	$3,523	C
Vander Karr Creek	7-8	Permanent Habitat Protection	Landowner Outreach to create Conservation Easement to protect High Quality ADID Wetland	NCWPC / TLC / MCDEF	18.0	$1,500	$27,041	$1,000	$1,803	C
Vander Karr Creek	7-9	Permanent Habitat Protection	Landowner Outreach to create Conservation Easement(s) to protect Vander Karr Prairie and remaining oak woodlland west of prairie	NCWPC / TLC / MCDEF	72.8	$1,500	$109,212	$1,000	$7,281	C
Vander Karr Creek	7-10	Permanent Habitat Protection	Landowner Outreach to create Conservation Easement(s) to protect oak woodland. Restore quality of oak woodland.	NCWPC / TLC / MCDEF	24.4	$1,500	$36,558	$1,000	$2,437	C
				SW TOTALS	**285.2**		**$695,847**	**$9,000**	**$26,767**	

PRIORITY

- **A Projects that have cooperating partners, can move to implementation quickly. Implementation Timeframe 1 to 3 years**
- **B Projects subject to imminent development pressure, Implementation Timeframe 1 to 2 years**
- **C Projects needed to protect sensitive areas. Timeframe 1 to 2 years**
- **D Restoration projects, Timeframe 1 to 5 years**
- **E Retrofit Projects, Timeframe 1 to 5 years**
- **F Existing Pollution Potential, Timeframe 1 to 2 years**
- **G Policy / Opportunity Review Project, Timeframe 1 to 3 years**

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