Green – Original HLA text to establish flow/fill gaps
Yellow – Text that has been heavily 'interpreted' and should be verified by the County
Purple – Negative Language/Claim in need of support or clarification
Cyan – Question for Staff/RPC

Water Resources Plan & Policies

Why plan for our Water Resources?

The great majority of McHenry County residents obtain their drinking water from groundwater sources. Although McHenry County currently possesses an abundance of surface and groundwater, given the projected growth of the County's population in the coming decades, it is possible that water demands may one day outstrip available supplies. As it stands today, the rate of groundwater withdrawal from local sources is approaching or possibly exceeding the natural rate at which aquifers can be recharged. As groundwater sources gradually deplete, the health of local streams, rivers, and wetlands are also being threatened by increased development in some areas of the County. As these areas are urbanized, the use of conventional development practices may compromise the watersheds they occupy and contaminate the water flowing into local water bodies. As development occurs, it is imperative that the County plan for stabilization and enhancement of existing water resources and create a more sustainable future for residents.

Community Character

There is a clear connection between the quality and abundance of a region's fresh water and quality of life its residents enjoy. A connection that is often overlooked or minimized, however, is that which exists between land use and development practices and the health of water resources. The choices that have been made in shaping the shopping centers we McHenry County residents visit, the schools our children attend, and the neighborhoods within which we live have all had an impact on the natural systems that provide us with the water we drink. The built form of local communities helps shape how residents interact with one another and also contribute to the relative health or degradation of local water resources. One of the goals of the Comprehensive Plan should be to maintain and enhance the health of the County's water resources while at the same time maintaining the beloved community character that its residents have cultivated. This will entail a reorientation of future development practices, improving the existing built form, and altering how our precious water resources are viewed and utilized.

Existing Conditions: Assessing our Needs and Limitations

Section 1: Groundwater Resources & Water Supply

Coming up Short

According to the 2006 McHenry County Groundwater Resources Management Plan, the County is already exceeding its "share" of withdrawal from the local deep sandstone aquifer. While substantial remaining capacity exists in the shallow aquifer, there will not be enough water to satisfy anticipated future demand in some areas of the County. Specifically, water demand is rapidly approaching available supply in Algonquin Township, with this trend forecasted to extend into Grafton and McHenry townships by 2030.

In addition to the shear demand for more water created by recent increases in population, several factors have contributed to this situation:

- Many households engage in activities that result in the excessive use of groundwater such as watering their lawns.
- The widespread use of centralized wastewater systems in incorporated areas of the County has resulted in the large-scale conversion of groundwater to surface discharge which is introduced directly into our streams and rivers.
- As rural areas of the County are urbanized, the use of conventional development practices such as mass grading, soil compaction, and the creation of large amounts of impervious surface is reducing the ability of aquifers to naturally recharge.
- Groundwater and surface water quality are also threatened by urban runoff pollutants, water softeners, septic systems, and industrial uses.

Recharge Area Protection

A recharge area is defined by its ability to allow rainfall and surface water runoff to infiltrate and effectively recharge underlying aquifers. A common characteristic of an effective recharge area is the presence of relatively permeable

granular soils near the surface, underlain by sandy or gravelly deposits. McHenry County is blessed with numerous recharge areas that are commonly associated with past glacial activity, including upland morainal deposits and floodplain outwash areas of rivers like the Kishwaukee.

While recharge areas effectively replenish aquifers, the County's more permeable soils also make local groundwater more susceptible to contamination. It is important to note that a substantial part of the County is underlain by soils that exhibit a "high potential for groundwater contamination". For this reason, land use and development should be carefully examined and regulated within sensitive groundwater recharge areas to ensure that the water quality, quantity and natural recharge functions of the area are safely maintained. There are several tools available to the County should it pursue a recharge protection program:

Appropriate Land Use & Zoning

Any development in recharge areas that involves grading or paving over large tracts of land, such as shopping centers, parking lots, and large residential developments, can be particularly damaging to recharge functions. Typically, such intensive development also generates runoff pollutants such as salt and petroleum by-products that can contaminate groundwater. Development which significantly alters the natural landscape and topography can also destroy areas in which precipitation naturally collects, such as glacial kettles and other low-lying areas.

The Illinois Groundwater Protection Act provides local governments the authority to protect groundwater recharge areas and wellhead zones through the use of ordinances and zoning controls. If such controls were to be implemented, the County would first need to identify groundwater protection areas and recharge overlay zones. Once these areas have been documented the County could then establish minimum setback distances and restrict certain land uses within the recharge areas and wellhead protection zones. The County could also create a permitting process to examine potentially hazardous land uses within protected areas. Protection areas could also be incorporated into County and local zoning ordinances.

Recharge areas exist throughout the County, crisscrossing numerous political boundaries. Successfully implementation of a cohesive groundwater protection program will necessitate coordination with municipalities. Just as with the countywide stormwater ordinance, funding the implementation of a groundwater protection ordinance could be accomplished through countywide taxes or permit fees.

Land Acquisition and Easements

Land acquisition within sensitive groundwater protection areas by open space conservation agencies, such as the McHenry County Conservation District, provides the best assurance for long term protection of recharge areas. If property owners prefer to retain private-ownership, the County could prevent development of the property by offering a conservation easement or the purchase of development rights. The Land Conservancy of McHenry County and the Illinois Nature Preserve Commission are among the entities to provide such protections on private property.

Conservation Development Design Guidelines

In recharge areas where development occurs, conservation design practices can be implemented that preserve local natural hydrologic functions. This would involve preserving open space, protecting natural areas, minimizing the creation of impervious surfaces, and maintaining existing local topography to the greatest extent possible. The County can establish a series of conservation design guidelines for unincorporated areas and work with municipalities to implement similar guidelines in recharge areas. Such guidelines can also be utilized to reduce the negative impacts of existing development through the restoration of natural hydrologic functions.

Wastewater Management Options

Unincorporated areas of McHenry County currently rely almost exclusively on onsite septic systems for their wastewater disposal needs. In comparison, most municipalities rely principally on conventional centralized wastewater collection and treatment systems that discharge treated wastewater to area streams and rivers. There are other wastewater treatment techniques available that are more efficient with respect to groundwater recharge which can be implemented throughout the County.

The County's Groundwater Resources Management Plan discusses the use of decentralized wastewater management at length. One alternative to the traditional methods of wastewater treatment is wastewater reclamation which involves the collection and treatment of wastewater before applying it to the land through irrigation. When compared to conventional septic systems, reclamation systems significantly reduce the amount of pollution reaching groundwater by fully treating wastewater to a high effluent quality before applying it to the land through the use of an irrigation system. A disadvantage to such a system is that a significant portion of the irrigation water evaporates, in comparison to septic systems, thus lessening the rate of groundwater recharge.

McHenry County municipalities largely draw their water supplies from groundwater, treat their wastewater at a centralized facility, and then dispose of their treated wastewater as surface water. As a consequence, groundwater withdrawals have no opportunity to replenish the aquifers that they were originally drawn from. Several municipalities, notably Huntley and Lakewood, have begun to implement alternative wastewater disposal options by using treated wastewater to irrigate golf courses and open space during the growing season. Richmond has developed plans for the reuse of treated wastewater while Algonquin provides treated wastewater to landscape companies for use in irrigation. This approach not only reduces the need for groundwater in irrigation, but also releases a significant percentage of the treated wastewater into the ground, providing better water quality protection for surface water bodies.

Existing Recharge Area Development Controls

Communities such as Crystal Lake, Bull Valley, and Woodstock have mapped sensitive recharge areas that are critical to both surface water and future groundwater supplies. Ordinances have been adopted to control development in these areas and minimize any adverse impacts to natural recharge functions. These are good models for the County and other communities to consider as they develop their own frameworks for recharge area protection. **Provide examples in text box or appendix…More text??**

Water Supply & Conservation

The County's Groundwater Resources Management Plan has concluded that a continuation of current rates of water consumption and withdrawal will put considerable strains on regional aquifers and potentially lead to localized water shortages. While considerable information has been collected on the existing capacity of aquifers, more information is needed to evaluate the capacity of aquifers as they relate to projected water demands in the County's growing local municipalities. The County must also work with municipalities to better evaluate and implement local water conservation programs. Several effective programs are being implemented locally, such as in the Village of Algonquin, which have been shown to substantially reduce water demand.

In response to these and related issues identified in the Groundwater Resources Management Plan, the County has hired a groundwater manager and convened a countywide Groundwater Task Force. The Task Force includes representatives from both the private and public sectors and is addressing a range of issues that it has prioritized as being most important to groundwater protection and conservation.

The Protection of Groundwater-Dependent Aquatic Systems

Groundwater discharge areas include fens, marshes, and other natural areas where the native plant and animal species depend on a constant inflow of clean, cool groundwater from shallow aquifers. Over-pumping can put a strain on these natural areas by reducing the flow of groundwater. Aquifer draw-down must be prevented in order to maintain groundwater discharge areas. The health of these areas is also related to the quality of groundwater sources. Excess discharges of nutrients, salt, and other pollutants related to development in the watershed can degrade the quality of the groundwater source and negatively impact groundwater-dependent aquatic systems.

For particularly sensitive groundwater-dependent ecosystems, the Illinois Environmental Protection Agency authorizes the designation and establishment of *Class III Special Resource Groundwater Protection Areas*. The Class III designation applies to demonstrably unique and irreplaceable groundwater sources suitable for application of a water quality standard more stringent than otherwise applicable. It applies to groundwater that is vital for a particularly sensitive ecological system; or groundwater contributing to an officially dedicated Nature Preserve. The Class III designation allows for setting site-specific groundwater standards for these areas.

The Class III designation has been established at two locations in the Boone Creek watershed of McHenry County. These areas were located within or adjacent dedicated nature preserves containing unique wetland natural communities, including **graminoid fens**, **calcareous seeps**, **sedge meadows**, and a **coldwater stream**. The figure

below highlights one of these Class III areas. These areas also have been identified by the Illinois State Geological Survey as having "high potential for aquifer contamination" due to the presence of highly permeable soils and subsurface materials, principally gravels and sands. The Village of Bull Valley has responded by adopting revisions to its comprehensive plan and subdivision and zoning codes that offer protection for these highly sensitive areas. Among other things, the village limits land use intensity and impervious coverage.

Section 2: Stormwater Management and Flood Prevention

Background

The large rainfall events in September 2008, and subsequent widespread flooding of streets, basements, structures, and farm fields, are a reminder of the significant impact flooding can have on the region. Flood damages in the northeastern Illinois six-county region average approximately $40 million per year. While estimated flood damages in McHenry County pale in comparison to more urbanized neighboring counties, ongoing and future development may pose increasing problems. In an effort to proactively address these issues, McHenry County and local municipalities formed a countywide Stormwater Management Committee in the mid-1990s. This Committee adopted the McHenry County Stormwater Management Plan in May, 1996 and, as a result of this plan, the Stormwater Management Commission adopted a countywide Stormwater Management Ordinance in January, 2004. The ordinance was adopted with the hopes that it represented the holistic management of stormwater and floodplains in both the incorporated and unincorporated areas of the County and, upon adoption, municipalities were given the option of retaining local control through a certification process.

The Stormwater Management Plan documented stormwater and flooding problems in the County and generally concluded that overbank flood damage was not a widespread problem in the County other than in certain areas along the Fox River. It was reported, however, that many communities were experiencing flood damage due to local drainage problems. A large component of this flood damage was believed to be the result of residential development within converted wetland areas. This development practice has not only put structures at risk of damage, but has also reduced the natural storage and conveyance capacity of flood storage areas. The 2004 stormwater management ordinance served to strengthen the regulation of development in floodways, flood fringe areas, depressional storage areas, and in isolated wetlands that are not regulated by the U.S. Army Corps of Engineers. One of the challenges related to this ordinance is to maintain continued effective countywide enforcement of the ordinance by all municipalities and the County.

The Stormwater Management Plan also documented extensive problems with stream bank erosion, noting relatively severe erosion in portions of Nippersink, Dutch, Boone, Crystal, Woods, Rush, and Coon Creeks. The most severe erosion was commonly located downstream of urbanized areas and in channelized stream segments. The erosion occurring in McHenry County waterways is the result of both an increase in the volume of surface water runoff and the rate at which it this runoff occurs. One of the driving forces behind these changes is an increase in development activity within the region which has created substantial areas of impervious surface and compacted soils. Developed areas contribute disproportionate amounts of surface runoff travelling at fast rates which, in turn, cause increased flood flows and higher velocities in receiving streams that result in channel erosion and road and culvert damage.

The countywide Stormwater Management Ordinance mandates the use of detention areas with strict release rate requirements for new development which serve to reduce the rate of runoff during a rain event. This ordinance is very effective in preventing increases in development-related flood flow rates in streams and small rivers. However, detention requirements do relatively little to reduce the large volume of runoff that is held in detention areas prior to being released into local waterways. This can contribute to flooding on large rivers like the Fox and the lower Kishwaukee and also functions to spread out the duration of flooding which can worsen stream bank erosion. Other methods of stormwater management must be identified and required if the County is to truly achieve a comprehensive management of stormwater and floodplains.

Section 3: Preserve and Enhance Streams, Lakes, and Wetlands

Existing Inventory

McHenry County's rivers and streams represent some of the highest quality stream resources in northeastern Illinois. According to XXXX, these fresh water sources maintain healthy aquatic systems with biological integrity ratings of Class A or B (on a scale of A to E). The County's Kishwaukee River, Nippersink Creek, and Boone Creek are all good examples of such high quality systems. The quality of some streams and river segments in the more urbanized portions of the County are beginning to suffer however.

The County also has a significant proportion of its land area covered by wetlands. In addition to wetland areas, the County also has extensive areas of drained **hydric soils**, some of which include former wetland areas. In total, wetlands and hydric soils comprise 17.5 percent of the County. While many of the County's original wetland areas have been degraded or drained, numerous high quality wetlands remain. High quality wetlands, particularly rare spring, seep, and fen ecosystems, depend on the recharge of clean groundwater to maintain their hydrology and diversity of habitat. Many of these areas have been designated as Advanced Identification (ADID) high quality habitats and are identified in the McHenry County Natural Areas Inventory (MCNAI). The ADID study was a collaborative effort of federal, state, regional and county resource agencies to identify and map the most significant wetlands, streams, and lakes in the County, and to highlight those with important habitat, water quality, and hydrologic functions.

Water Quality & Hydrologic Protection

The quality and health of the County's water bodies and wetlands depends heavily on what occurs within their contributing watersheds. Development adjacent to surface water bodies and wetlands can have dramatic effects on the integrity of these systems. It must also be recognized that development activities anywhere within a watershed, even miles from a stream, lake, or wetland, can adversely affect water quality and flow conditions.

The countywide Stormwater Management Ordinance includes numerous provisions for the protection of streams, wetlands, and adjacent buffer areas. The ordinance requires detention areas for new developments to achieve control of both runoff rates and stormwater pollutants. The ordinance also has a runoff reduction hierarchy that encourages, but does not require, best management practices to better address runoff hydrology and water quality issues. Despite the ordinance's promotion of additional measures such as the use of **bio-swales**, **infiltration devices**, and **permeable paving materials**, such measures are not commonly implemented in new development.

Protecting and Enhancing Recreational Uses

Healthy water bodies and wetlands can support a range of desired recreational uses and the County is blessed with numerous water-based recreational areas, ranging from boating and fishing in the Chain of Lakes to paddling the Kishwaukee River and Nippersink Creek. As development occurs, there is a potential threat to both the quality of our water resources and the recreational experiences they provide.

Private development can also act to constrain public access to water bodies for recreational uses. Currently, of all the river and stream systems in the County, only the Fox River is considered *public water* under state law. Public use of other water bodies may be restricted unless riparian or lacustrine land is owned by a public agency. Within McHenry County, the Conservation District is undertaking such a task by acquiring open space along the Kishwaukee River, Nippersink Creek, and their tributaries. Municipal park districts can also play a part in enhancing recreational opportunities through the local protection of streams, lakes, and wetlands. A noteworthy example of this can be found in the Crystal Lake Park District's efforts to protect and provide access to the City's namesake, Crystal Lake.

Past Planning Initiatives and Pertinent Entities

The work of the **McHenry County Stormwater Management Committee** in the 1990s and their findings discussed in the **Stormwater Management Plan (1996)** marked a shift in how water resources were perceived within the region. It was recognized that successfully managing the County's surface water resources required cohesive action by municipalities throughout the entire County. These efforts resulted in the eventual adoption of a countywide **Stormwater Management Ordinance** in 2004. While the ordinance represents a positive step toward comprehensive groundwater management, its focus remains the management of surface water runoff and flood mitigation. The ordinance cannot successfully deal with the issues of erosion and groundwater recharge and must be replaced by a more holistic ordinance that incorporates a water-shed based approach to land use changes and development. Such an approach must integrate environmentally responsible land use and development policies that avoid development and in-fill in sensitive flood prone areas. It must also manage precipitation and stormwater as resources to be used, first and foremost, in the recharging of groundwater resources in addition to providing stormwater detention for new development and redevelopment.

Groundwater Resources Management Plan of **November 2006** continues to recognize the importance of regional coordination and action first established in the Stormwater Management Plan.
→ Is there a brief summary of this plan available? What portions of this have been adopted? How does the Comprehensive Plan text relate to the Groundwater Resources Management Plan?

The **McHenry County Soil and Water Conservation District (SWCD)** was formed in 1947 and is one of 98 Soil and Water Districts in Illinois that are charged with the task of assisting in the conservation and protection of the land, water, air and other resources of the State. The SWCD works with municipalities, private land owners, and agricultural producers on natural resource issues. The SWCD produces Natural Resource Information reports for all zoning and land use changes in McHenry County. Among its other services, the SWCD sells native tree species to County residents, provides educational materials, and is involved in educational programs throughout McHenry County. The SWCD is a Not-For-Profit funded through annually renewable State and County grants as well as fees generated from its numerous programs. The SWCD represents a valuable partner in the pursuit to protect the County's water resources and could work with the County to educate the public on the issues of soil and water conservation.

Goals, Objectives, & Policies

GOAL 1. ENSURE THE FUTURE REPLENSIHMENT OF GROUNDWATER RESOURCES.

OBJECTIVE A. Develop a comprehensive groundwater protection ordinance, in conjunction with municipalities, which may include zoning and subdivision provisions for recharge area and wellhead protection.

- ***A1.*** Augment the existing Stormwater Management Ordinance, adopted in 2004.
- ***A2.*** Utilize information and recommendations from the Groundwater Resources Management Plan (November 2006) to inform the new ordinance.
- ***A3.*** Utilize existing local stormwater management models to inform the new County ordinance and better enable countywide adoption by municipalities.
- ***A4.*** Work with municipal and private water utilities to diversify water sources that do not create a dangerous dependence or excessive load on any one source.
- ***A5.*** Work with municipalities to encourage the extension of corporate boundaries to only those areas contiguous to existing development.
- ***A6.*** Raise public awareness, and establish development guidelines about the best practices for implementing groundwater recharge programs that balance water extraction and replacement.
- ***A7.*** Develop a countywide source water protection plan, which would incorporate watershed based planning and scientific data on the geology and aquifer systems of the County in order to protect recharge areas and provide sustainable drinking water supplies for projected populations.
- ***A8.*** Support the CMAP regional water supply planning initiative to authorize creation of a countywide water supply planning committee in order to give the county authority to adopt a water supply management ordinance, but not including the authority to regulate the agricultural use of water. Clarify the CMAP process (check groundwater plan wording)
- ***A9.*** Establish and maintain a collaborative intergovernmental mechanism for managing watersheds over time, in cooperation with local, state and federal agencies and organizations.
- ***A10.*** Engage in mutual planning and intergovernmental agreements with municipalities, townships, and other relevant public and private entities to protect sensitive aquatic ecosystems.
- ***A11.*** Increase the capacities of county and municipal governments to protect, restore and manage watershed resources with effective and consistent regulations, leadership, and public education.
- ***A12.*** Consult adopted watershed plans (i.e., Kishwaukee River, Fox River, Nippersink Creek, Boone Creek, and others currently under development) and implement relevant land use and conservation development recommendations when considering any plans for development in these watersheds.

OBJECTIVE B. Protect sensitive recharge areas.

- ***B1.*** Work with municipalities, the McHenry County Conservation District, and land conservancies to prioritize the acquisition of recharge areas through the use of easements and the lease, donation, and/or purchase of lands.
- ***B2.*** Plans for proposed development should generally avoid altering or harming natural communities and sensitive areas such as wetlands, hydric soils, floodplains and regulated buffers.
- ***B3.*** Intensive development activities, such as shopping centers, parking lots, and high density housing developments, should be discouraged in areas designated as High Potential for Aquifer Contamination.
- ***B4.*** Encourage compact development patterns that build communities, clustered neighborhoods, villages, and towns, rather than a pattern that scatters isolated buildings and subdivisions.
- ***B5.*** Promote the preservation and enhancement of flood hazard areas, wetlands, and drainageways and their natural functions, including aquatic habitat, stormwater storage, flood control, recreation, water quality protection, and aesthetics.
- ***B6.*** Identify specific mechanisms at the County and municipal level for the protection of wetlands, stream corridors, and hydric soil zones. Such mechanisms may include zoning techniques, such as overlay districts, public acquisition, conservation easements, developer donations, and conservation design techniques.

OBJECTIVE C. Promote practices that maximize the infiltration of water through natural processes.

- ***C1.*** *E*ncourage and/or require the practice of conservation design techniques and development controls in sensitive recharge areas to the greatest extent possible.
- ***C2.*** Mass grading, substantial alteration of natural landforms, and development of glacial kettles and other natural rainwater collection areas should be avoided.

C3. The creation of impervious surfaces should be minimized through the use of clustering, narrow street widths, reduced parking lot sizing, and alternative permeable materials.

C4. Promote the development and enforcement of land use, zoning, and subdivision codes that minimize the creation of impervious surfaces, grading and compaction of soils and underlying materials which could adversely affect recharge capacities and water quality.

C5. The infiltration of clean runoff should be facilitated utilizing techniques such as swales, filter strips, permeable materials, and natural landscaping.

C6. Encourage the use of natural drainage in combination with natural landscaping, wherever practical, in lieu of curb and gutter and storm sewer systems.

C7. Require the preservation of significant natural features such as native vegetation, aquatic habitat, waterways, floodplains, and wetlands in new development areas.

C8. Promote and encourage the use of design techniques (i.e. conservation design), best management practices, and other methods to ensure that the proportion of impervious surface within a given watershed that is experiencing development does not inhibit that watershed's ability to maintain or improve stream quality.

C9. Communities, in cooperation with the McHenry County Stormwater Management Committee, should develop and enforce subdivision and stormwater regulations that protect the storage and recharge functions of depressional storage areas, including kettle holes, farmed wetlands and depressions, and jurisdictional wetlands.

OBJECTIVE D. Encourage the practice of alternative wastewater management practices throughout the County.

D1. To the maximum extent practicable, utilize treated wastewater as a resource for irrigation and safely recharge area aquifers.

D2. Evaluate and implement, where practical and appropriate, innovative wastewater reclamation techniques – such as land application of treated wastewater – in lieu of conventional onsite systems in sensitive recharge areas.

D3. Encourage and implement wastewater reclamation and reuse throughout the County in lieu of conventional surface water discharges from centralized wastewater systems.

D4. Encourage use of grey water in new construction to reduce water demanded for toilet flushing.

D5. Recommend that all wastewater Facility Planning Area (FPA) expansion requests include the water demand aspect of land use plans within the municipal planning area and the area of the proposed expansion and identify the source of supply to meet the long-term demand.

D6. Promote the reclamation of wastewater in an environmentally sound manner that is conducive to public and aquatic health, including the encouragement of wastewater recycling and reuse systems, land applications of reclaimed wastewater, and wetland or other types of treatment to reduce and eliminate the impacts of nutrient discharges into rivers and creeks.

GOAL 2. EFFECTIVELY MANAGE THE USE OF GROUNDWATER RESOURCES

OBJECTIVE E. Develop an aggressive countywide water conservation strategy

E1. Utilize the best local and regional programs as models.

E2. Implement appropriate components of the strategy through local ordinances and effective education programs.

E3. Local governments should be encouraged to perform water supply studies, as a companion to local land use planning, including reports on the adequacy of the sources to meet existing and projected growth in both short- and long-term time horizons.

E4. Require large groundwater users, such as ethanol plants, to perform a thorough analysis of the effects of proposed water withdrawals and ensure that there are no adverse impacts on other users.

E5. Encourage land use and development policies, such as conservation design and natural landscaping, which minimize irrigation-dependent landscapes.

GOAL 3. ENHANCE OVERALL WATER QUALITY AND HYDROLOGIC PROTECTION.

OBJECTIVE F. Protect groundwater-dependent aquatic systems.

F1. Implement land use and development policies that preserve a minimum base flow in wetlands and streams.

F2. Implement conservation design techniques that minimize any alteration of the natural hydrology or water quality for new development within ground-watersheds that discharge to sensitive aquatic ecosystems.

F3. Develop pollutant source reduction programs to be implemented in ground-watersheds that discharge to sensitive aquatic ecosystems.

F4. Designate existing Class III Special Resource Groundwater Protection Areas as overlay districts and protect them from inappropriate development. In particular, land use and development in such areas should be strictly controlled via the following measures:

- Preserve natural open space, including sensitive natural areas;
- Avoid commercial and high-density residential uses;
- Protect groundwater recharge functions to the maximum extent practicable;
- Minimize wastewater impacts by utilizing innovative technologies that maximize the filtering of discharged wastewater;
- Utilize naturalized stormwater drainage and detention that maximize the treatment and infiltration of clean water;
- Utilize natural landscaping in lieu of turf grass, wherever feasible; and
- Minimize salt use in pavement deicing and in water softening systems.

F5. Identify other potential Class III Special Resource Groundwater Protection Areas.

F6. Encourage local municipalities to alter future land use plans and zoning ordinances based on local natural resource constraints so as to avoid development in sensitive areas.

F7. The County and municipalities should implement comprehensive strategies to protect groundwater quality from the adverse effects of septic systems (including nutrients, household chemicals, and water softener salts), road salt, and lawn chemicals.

OBJECTIVE G. Establish an integrated countywide network of protected streams.

G1. Work with McHenry County Conservation District, municipalities, townships, other appropriate agencies, and private landowners to identify and preserve greenway connections along streams that link to nearby or proposed natural areas and open spaces.

G2. Restore stream and river corridors where they are included within development projects.

G3. Preserve and restore native vegetation buffers adjacent to water bodies to filter out damaging pollutants, preserve aquatic habitat, and protect stream banks from erosion.

G4. Strictly limit development within buffer areas. (glossary: buffer)

G5. Establish long-term management responsibilities, including permanent legal mechanisms, ensured funding sources and qualified management entities for buffer areas to ensure adequate protection.

G6. Protect streams, lakes, and wetlands through permanent protection methods such as conservation easements etc.

G7. The County, in cooperation with municipalities and watershed planning and resource agencies, should create and adopt a stream and wetland open space plan and natural resource protection programs.

G8. The County and municipalities, in cooperation with the McHenry County Conservation District, should utilize the strategies of the Northeastern Illinois Regional Greenways Plan (NIPC and Openlands Project) as a guide for greenway and stream corridor designation, coordination, and development.

G9. Develop a network of stream and river canoe access facilities in cooperation with the MCCD, local park districts and departments, and in consideration of the recommendations of the Regional Water Trails Plan.

G10. Acquire and maintain an inventory of natural resources with the goal of identifying and preserving all areas that include important or unique characteristics including wetlands, floodplains, prime aquifer recharge areas, surface water, woodland coverage of five acres or more, prairies, savannas, and scenic areas.

G11. Create and manage a network of “green infrastructure” that is integrated with the pattern of development, and protects habitat, provides recreation, and preserves the scenic character of the landscape.

OBJECTIVE H. Minimize the negative impacts of the mining industry.

H1. Continue to audit and minimize impacts of gravel mining on water quality and implement reclamation plans for future land uses and encourage reclamation of historic borrow pits.

OBJECTIVE I. Minimize the negative impacts of agricultural uses on water quality.

- ***I1.*** Advocate sound land-management practices in agricultural areas to provide stream buffers, prevent erosion, and eliminate water pollution.
- ***I2.*** Increase farmers' voluntary participation in the program established by the Illinois Agricultural Areas Conservation and Protection Act, possibly through the use of incentives such as tax deductions.
- ***I3.*** Promote the use of advanced stormwater management and agricultural practices, particularly best management practices (BMP's) that protect surface water resources.
- ***I4.*** Install BMP demonstration projects at public properties to illustrate good watershed management practices.
- ***I5.*** Prohibit the connection of surface water drainage systems to agricultural drain tile systems.

GOAL 4. PROTECT WATER BODIES AS RECREATIONAL AREAS THROUGHOUT THE COUNTY.

OBJECTIVE J. Preserve public access to local wetlands, streams, rivers, and lakes.

- ***J1.*** Work with conservation groups and public agencies to acquire open space areas adjacent significant water bodies.
- ***J2.*** Encourage local park districts to adopt a policy of protecting and providing access to local water bodies.

GOAL 5. REDUCE FLOODING AND EROSION PROBLEMS THROUGHOUT THE COUNTY

OBJECTIVE K. Reduce the runoff produced by developed areas.

- ***K1.*** Include a purpose statement within Municipal and County ordinances that states the goal of a "reduction of runoff pollution to the maximum extent practical, consistent with state and federal stormwater permit requirements."
- ***K2.*** Develop stringent land use regulations for construction sites, mining areas, and undeveloped lands.
- ***K3.*** Encourage the Illinois Environmental Protection Agency to limit Facility Planning Area amendments involving a new or increased point source discharge to circumstances where such discharges are shown to preserve the ability of streams to achieve or maintain a Class B or greater water quality stream rating.
- ***K4.*** Perform routine audits of all the certified communities to verify proper adherence to and enforcement of the Stormwater Management Ordinance.
- ***K5.*** Minimize development in areas with steep slopes (12% in Open Space chapter).

Figures:

1. Map, Existing Surface Water Resources
2. Map, McHenry County Groundwater Capacity: 2000, 2030
3. Map, McHenry County Aquifer Sensitivity
4. Map, Boone Creek Fen Illinois Natural Area and Class III Ground Watershed.
5. Map, McHenry County Hydric Soils and ADID Wetlands

Outside Experts and Presenters:
Ed Collins, MCCD – Aquatic Resources
Larry Thomas, Baxter and Woodman – Groundwater and Water Supply
Tim Loftus, CMAP – Regional Groundwater and Water Supply
Dave Brandt, NRCS – Soils, Geology, and Stormwater
Ed Weskerna, McHenry County Soil and Water Conservation District (SWCD) – same
Marcia McCutchan, RHMG – Wastewater
Cindy Skrukrud, Fox River Ecosystem Partnership
Dennis Dreher, Boone Creek Watershed Alliance
Randy Stowe, Nippersink Creek Watershed
Nathan Hill, Kishwaukee River Ecosystem Partnership
Ders Anderson, Upper Kishwaukee River/Franklinville Creek
Lenore Beyere-Clow, Marengo-Union Region of Kishwaukee River
Surrounding Counties
Municipalities and Townships

Sources:
McHenry County Groundwater Resources Management Plan.
Draft McHenry County 2020 Unified Plan, February 2006.
McHenry County Stormwater Management Plan, July 1996.
McHenry County Stormwater Management Ordinance, January 2004.
Soil Survey of McHenry County, Illinois, USDA-NRCS, 2002.
Strategic Plan for Water Resource Management, Northeastern Illinois Planning Commission, 2002.
Woodstock Comprehensive Plan, 2002.
Bull Valley Comprehensive Plan Regarding the Boone Creek Fen Illinois Natural Area Watershed District.
Kane County 2030 Land Resource Management Plan.
Preserving the Kishwaukee Watershed: Guiding Development in the Marengo Union Region.
Add additional watershed plans.