1. Introduction

1.1 Purpose

The Lower DuPage River Watershed Plan serves as a first step in addressing water quality impairments and preventing further degradation within the watershed. This plan identifies stakeholders, problems, solutions and funding sources to improve water quality within the Lower DuPage River watershed.

1.2 Watershed Overview and Location

The DuPage River, consisting of the East and West Branches as well as the Lower DuPage, is the largest tributary to the Des Plaines River Basin, covering 353 square miles. The Lower DuPage River watershed covers 168 square miles and encompasses portions of 14 municipalities. The majority of the watershed is within Will County, although portions of the watershed are also in DuPage, Grundy, and Kendall Counties. There are 166 stream miles within the watershed.

This watershed is unique in that it is not a true headwater stream; the Lower DuPage begins at the joining of two other rivers. The Upper DuPage River watershed, that of the East and West Branches combined, is highly urbanized and therefore exerts a great affect over the downstream water quality of the Lower DuPage. The watershed is also unique in that the Illinois Environmental Protection Agency (IEPA) includes a portion of the Illinois and Michigan Canal, a manmade canal originally built for the transport of goods from Lake Michigan to the Mississippi River, as a part of the watershed.

The Lower DuPage River begins at the confluence of the East and West Branches DuPage River, at the border of DuPage and Wheatland Townships on public properties owned by the Naperville Park District and the Forest Preserve District of Will County, called the DuPage River Confluence Preserve. The river travels southwest through portions of Naperville and Bolingbrook before joining with Spring Brook east of Plainfield Naperville Road and north of Boughton Road in Naperville. The Lily Cache is another major tributary of the Lower DuPage, originating in Darien and Woodridge and flowing southwest through Bolingbrook and Plainfield before meeting the main stem in Joliet, north of Caton Farm Road and west of Interstate 55. Mink Creek is a tributary located in the middle section of the watershed, originating in unincorporated Will County, flowing through portions of Romeoville and Rockdale before flowing into the Lily Cache in Plainfield, north of Joliet Road (Route 30) and west of Interstate 55.

Rock Run Creek is the tributary south of Mink Creek, originates in Crest Hill and flows southwest through Joliet and unincorporated Will County before meeting the Illinois and Michigan Canal, south of Mound Road and east of Interstate 55 in unincorporated Will County. The portion of the Illinois and Michigan Canal that is within the Lower DuPage River watershed originates where the Canal separates from the Des Plaines River in Joliet, east of Brandon Road and south of Railroad Street (Route 6) and follows southwest through portions of Joliet, Channahon and unincorporated Will County before flowing into the main stem.

South of where the Lily Cache flows into the main stem, the river flows south through portions of Joliet, Shorewood, Channahon, Minooka and unincorporated Will County before flowing into the Des Plaines

River north of Walnut Lane and east of the Illinois and Michigan Canal Trail near the border Kendall and Will Counties in the Illinois Department of Natural Resources' (IDNR) Illinois and Michigan Canal State Park. The Channahon Dam is located 0.5 miles upstream from the confluence. Other dams within the watershed include the Hammel Woods Dam in the Hammel Woods Forest Preserve in Shorewood.

There are many other smaller tributaries, which by incorporating natural drainage divides, are the basis for the 12 subwatersheds. The creation of the subwatersheds was done in order to separate the watershed into more manageable units and to better identify specific impairments. The subwatersheds also take into account a previous subwatershed delineation by IDNR, the *Strategic Sub-Watershed Identification Process: maximizing Benefits of Ecosystem Management DuPage River Coalition* completed in 2005. This report divides the Lower DuPage watershed into over 40 subwatersheds, which was deemed too many for the purposes of this plan. However, IDNR's subwatersheds were only combined to create the 12 subwatersheds in this plan, they were not divided. The 12 subwatersheds are numbered from north to south.

The United States Geological Survey (USGS) divides the country into local drainage basins called Watershed Hydrologic Unit Code or HUCs. The HUC for the Lower DuPage is 0712000408. The IEPA uses Assessment Unit Identification (AUID) codes to identify waterbody segments and lakes. The following AUIDs are found in the watershed:

Waterbody Name	AUID	AUID Size	Units
DuPage River	IL_GB-01	8	Miles
DuPage River	IL_GB-11	9.81	Miles
DuPage River	IL_GB-16	10.39	Miles
Illinois and Michigan Canal	IL_GBA	5.17	Miles
Lily Cache Creek	IL_GBE-01	7.56	Miles
Lily Cache Creek	IL_GBE-02	9.56	Miles
Mink Creek	IL_GBEA	5.64	Miles
Rock Run	IL_GBAA-01	9.63	Miles
Spring Brook	IL_GBKA	1.87	Miles
Spring Brook	IL_GBKA-01	3.55	Miles
Arbor	IL_RGZI	14.7	Acres
Big Heritage	IL_SGJ	5	Acres
Joliet Junior College	IL_WGZX	11	Acres
Renwick Lake East	IL_WGI	330	Acres

Include map showing county boundaries, location in region

Subwatershed sizes?

The primary land uses in the watershed are agriculture and residential, covering approximately 30% of the watershed area each. Public land in the watershed is owned and managed by a variety of different entities, mostly the Forest Preserve District of Will County and various park districts. Public lands in the watershed include the DuPage River Park (Naperville Park District); Springbrook Prairie (Forest Preserve

District of DuPage County); Riverview Farmstead, Lake Renwick, Hammel Woods, O'Hara Woods and McKinley Woods (Forest Preserve District of Will County); Community Park and Remington Lakes (Bolingbrook Park District); Settlers' Park and Electric Park (west) (Village of Plainfield); Electric Park (east), Eaton Preserve, Riverview Park, Mather Woods, Renwick Community Park, Vintage Harvest Park, Streams Recreation Center, Riverwalk Park, Van Horn Woods, Riverside Parkway and Sunset Parkway (Plainfield Park District); West Shore Park, Little Coyote Park, Gabrielson/Oakwood Park, Shorewood Park and Seil Road Park (Village of Shorewood); Community Park and Chanooka Canoe Launch (Channahon Park District, the canoe launch is a partnership with the Villages of Minooka and Channahon); and Channahon State Park (Illinois Department of Natural Resources).

There are four segments that are listed as impaired, or not meeting their designated uses, including the entire main stem and the upper segment of the Lily Cache (IL_GBE-01). Total maximum daily loads (TMDLs) are currently being developed by IEPA for all three mainstem segments: silver for the lower mainstem segment (IL_GB-01), chloride and fecal coliform for the middle main stem segment (IL_GB-11), and dissolved oxygen and fecal coliform for upper mainstem segment (IL_GB-16).

1.3 Importance to the Reader

This watershed plan will serve as a large first step towards improving water quality. The plan will identify current and future problems in the watershed and propose possible solutions. Means of implementing the solutions will be examined as well in order to leave the reader with as complete a resource as possible.

Through the voluntary participation of members of the community that are concerned about water quality and desire concrete plan to improve the situation, the stakeholders determined that the overall goal of the Lower DuPage River Watershed Coalition (Coalition) is to protect and manage watershed health as measured by chemical, physical and biological integrity and through education and communication.

1.4 Project Background

A watershed plan for the Lower DuPage had not been created thus far. The entire DuPage River watershed has been examined by IEPA and IDNR, as detailed in Integrated Reports and the SSIP. However, there is a need for a more detailed and in depth study of a manageable subwatershed. The Conservation Foundation (TCF) applied for Clean Water Act Section 319 funds to complete a watershed plan for the Lower DuPage in 2008. Funding was not received under this grant, however, CMAP subsequently approached TCF with funds for the project provided by IEPA through Section 604b of the Clean Water Act and the American Recovery and Reinvestment Act of 2009.

The Conservation Foundation has a strong background in watershed planning, having completed watershed plans for the Upper DuPage, Aux Sable Creek, Tyler Creek and Big Rock Creek previously. We have also participated in numerous watershed groups and ecosystem partnerships including Blackberry Creek, Mazon Creek, the Upper DuPage Ecosystem Partnership, the Fox River Ecosystem Partnership, the Lower Des Plaines Ecosystem Partnership and the Prairie Parkland Ecosystem Partnership. Local buy in and support for watershed protection and enhancement is critical for success in any watershed as well as having professional staff to coordinate, organize and provide technical support throughout the planning and implementation process.

In order to accomplish things efficiently and effectively, the Coalition has organized a Steering Committee to make decisions and provide overall direction for the plan. The Steering Committee consists of representatives from all stakeholder groups willing to participate, including governmental representatives, wastewater treatment plants, and the environmental community. A Technical Committee has also been selected to support the Coalition through technical information. The Technical Committee is composed of the consultant, V3 Companies, who has completed the pollutant load analysis.

The plan is subject to criteria required by the U.S. EPA and CMAP as detailed below:

Nine minimum elements of watershed plan and section of this plan where addressed

Element	Section
(a) An identification of the causes and sources that need to be controlled to achieve pollutant load reductions estimated in this plan;	
(b) An estimate of the load reductions expected for the management measures described under (c) below;	
(c) A description of the nonpoint source management measures that will need to be implemented to achieve the load reductions estimated under (b) above;	
(d) An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon, to implement this plan;	
(e) An information/education component that will be used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented;	
(f) A schedule for implementing the nonpoint source management measures identified in this plan;	
(g) A description of interim, measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented;	
(h) A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made towards attaining water quality standards; and	
(i) A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item (h) above.	

B-MAG outline for a locally developed watershed plan

1. Inventorying and Assessment (more detailed than the State plan drawing on local information)
    a. Describe sources of water quality degradation;
    b. Identify current land uses;
    c. Assess existing local regulations; and,
    d. Describe and/or quantify existing protections such as NPDES permits, Phase II plans, existing ordinances, CRP and CREP acreage, etc.
2. Estimation of Future Needs and Concerns
    a. Estimate twenty-year (or different time period, as appropriate to the planning area) growth patterns and land uses;

    b. Estimate expected changes in sources of degradation in water quality ; and,
    c. Identify funding, site-specific projects, policy changes and other resources needed to continue and expand (if necessary) protection programs.

3. A Vision For The Watershed
    a. Outline issues and opportunities, incorporating local communities comprehensive and other plans;
    b. A vision for wastewater treatment and water supply and possibly other infrastructure;
    c. A vision for land use; and,
    d. A vision for protection and/or restoration of water quality.

4. Plan for Implementing the Vision
    a. Identify a plan for protection and/or restoration of water quality;
    b. Identify steps needed to achieve surface water quality protections;
    c. Identify steps needed to protect groundwater quality;
    d. Estimate pollutant reductions that will be achieved through implementing protections;
    e. Identify tools that could be used to achieve these goals;
    f. Identify monitoring and enforcement tools for use by state and local officials;
    g. Identify the amount of funding and technical assistance needed to implement the watershed plan, possible funding and technical assistance sources, site-specific projects, policy changes, and steps to secure the needed resources;
    h. Identify ways to ensure consistency with local communities plans; and,
    i. Set a schedule for implementing the actions identified in steps a. through h.

5. Metrics for Evaluation
    a. Identify interim, measurable milestones for determining whether the action steps above are being implemented;
    b. Criteria to determine whether pollutant reductions are occurring and progress is being made toward water quality goals; and,
    c. A monitoring and evaluation plan to evaluate the effectiveness of the Watershed Plan and its implementation.

1.5 Goals Vision Statement

As stated previously, the overall goal of the Coalition is to protect and manage watershed health as measured by chemical, physical and biological integrity and through education and communication. The Coalition also created goals under each subtopic: biological, chemical, physical and education and outreach.

Biological

- Protect natural resources
- Restore stream health
    - Identify pollutants and sources and how the pollutants affect stream biology
    - Use the Index of Biotic Integrity (IBI) as a baseline indicator of watershed health
- Establish and protect buffers and greenway corridors through the creation of a prioritized map based on quality, restoration potential and other factors
- Protect and restore streambanks and floodplain

- Identify areas for modification/improvements: riffle/pool sequences, shoreline stabilization, reconnection with floodplain (list of potential restoration projects)
- Identify existing open space, potential open space areas for protection, acquisition, easements, parks/recreation
- Reduce eutrophication

Chemical

- Attain data necessary to assess and monitor stream quality
    - Develop and implement a monitoring and analysis program
    - Identify monitoring parameters
    - Establish baseline levels and ongoing program
    - Continue data collection and analysis to measure achievement (monitoring program)

Physical

- Improve recreational opportunities, access and awareness
    - Develop a watershed map identifying stream access points
    - Promote signs identifying natural resources in the watershed
- Reduce flooding and flood damage
    - Identify land for potential conservation easements
    - Identify stream stabilization and restoration projects
    - Ensure that wetland and floodplain maps are accessible
- Reduce erosion
    - Promote native vegetation for streambank stabilization and restoration
    - Promote BMPs to reduce runoff velocity
    - Conduct landowner outreach
    - Look for partner agencies to maximize efforts

Education, Outreach and Communication

- Enhance stewardship in the watershed through education, outreach and communication
    - Extend outreach to the watershed by identifying stakeholder and their interests in the watershed, contacting them and encouraging and measuring participation for the duration of the project
    - Education will be accomplished during the project through the creation of a watershed map, brochure, webpage, and meetings regarding key issues