



DRSCW



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Front cover photo: Salt Creek and canoeist in Fullersburg Woods Forest Preserve, courtesy of Forest Preserve District of DuPage County.

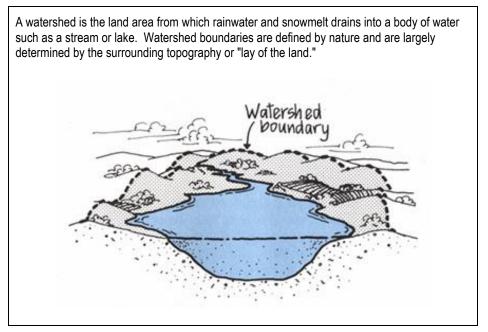
Back cover photos: courtesy of Forest Preserve District of DuPage County (roots wads in Salt Creek at Oakwood Meadows; kayakers), great blue heron (Scott Saake), Allen Goodcase (dragonfly), and Jim Schultz (turtles).



1. Introduction

Watershed planning is a public process involving all parties with an interest or "stake" in the environmental health and quality of life of the area at issue. A watershed – the land area from which precipitation or snowmelt and resulting surface runoff drain to a lake or river – serves as the organizational framework for thinking about, planning, and managing land use and other activities that affect both land and water resources.

Figure 1. Watershed boundary schematic.



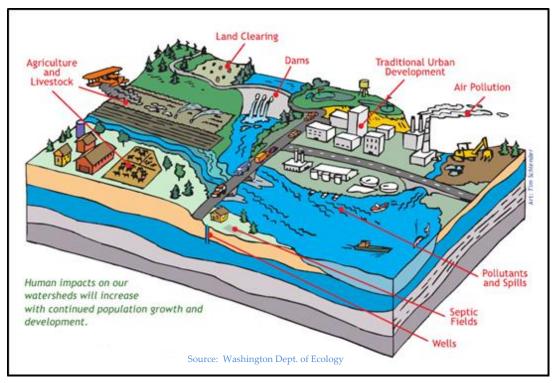
Watershed boundaries are defined by topography or the "lay of the land." Thus, the edge or boundary of a watershed is defined by the highest points and ridges of lake around the waterbody of interest (Figure 1).

Everyone lives in a watershed. It's our human activities within the watershed that affect local water quality and the waters of our downstream neighbors (Figure 2). Thus, watershed planning is commonly driven by the need to correct water pollution problems in streams and/or lakes. Planning also can focus on protecting water resources that are not currently impaired by any number of potential sources and causes of pollution. When remedy for water pollution and/or protection of water resources is sought, it is usually made possible by funding that stems from the Clean Water Act.¹ Such is the case with this plan.

¹ Federal Water Pollution Control Act of 1972 (Public Law 92-500) as amended, also known as the Clean Water Act.



Figure 2. Human impacts on watersheds.

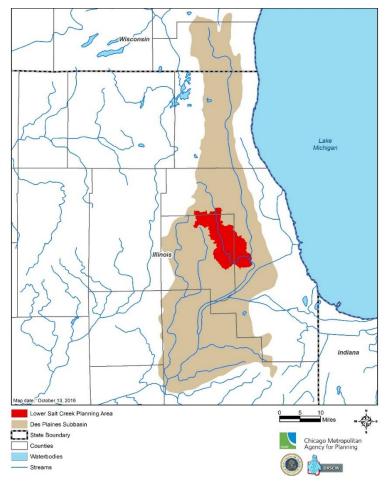


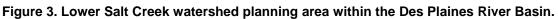
The Chicago Metropolitan Agency for Planning (CMAP) received a Clean Water Act grant from the Illinois Environmental Protection Agency to develop a watershed-based plan for the Lower Salt Creek watershed located in eastern DuPage County and western Cook County in northeastern Illinois (Figure 3). CMAP partnered with DuPage County Stormwater Management (DCSM) and the DuPage River Salt Creek Workgroup (DRSCW) to prepare this plan and work with local stakeholders to develop recommendations that upon implementation will help restore and protect the water quality of Salt Creek and its tributaries that ultimately drain to the Des Plaines River. This plan follows U.S. EPA and Illinois EPA watershed-based planning guidelines since it is made possible by Clean Water Act funding.



2. Lower Salt Creek Watershed Planning Area

The Lower Salt Creek Watershed planning area lies within the Des Plaines River Subbasin² intersecting the DuPage-Cook County border (Figure 3). For the extent of this plan, Lower Salt Creek originates at the outlet of Busse Lake approximately 1.5 miles north of the DuPage-Cook County border and enters the Des Plaines River in western Cook County in Lyons. The Lower Salt Creek planning area is comprised of three HUC 12 watersheds: Middle Salt Creek, Lower Salt Creek, and Addison Creek (Figure 4). The 100.7 square mile planning area boundary was further refined based on DCSM, MWRD, and the adjoining Silver Creek watershed boundary datasets, and it was subdivided into 14 subwatersheds or "study units" (Figure 5) to allow for a more nuanced understanding of local conditions and to improve consideration of best management practices in terms of where they will be helpful.





² The Des Plaines Subbasin (HUC 07120004) is a part of the Upper Mississippi region (located within the Upper Illinois subregion). Major streams include the Des Plaines River, Salt Creek, and West Branch of the DuPage River.



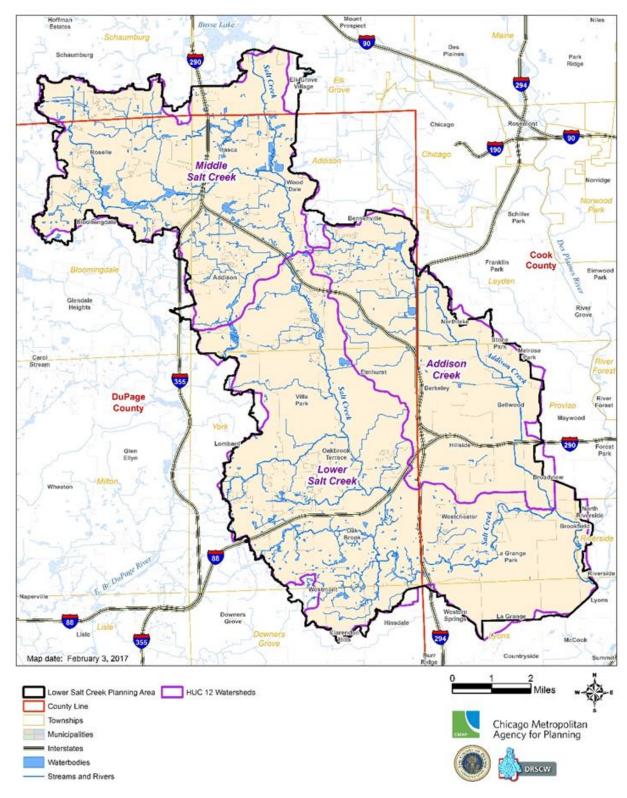


Figure 4. The three HUC 12 watersheds of the Lower Salt Creek planning area.



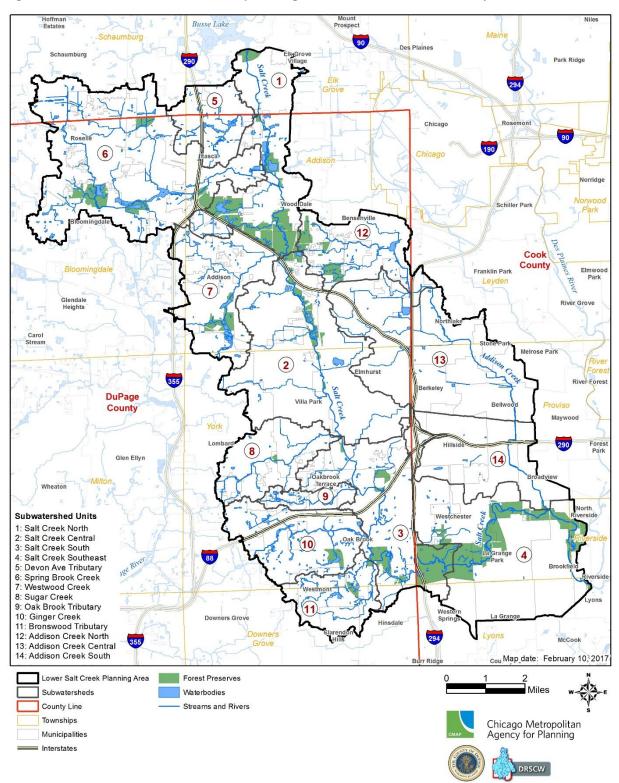


Figure 5. Lower Salt Creek watershed planning area and subwatershed study units.



Sub	watershed / Study Unit	1	Area
#	Name	Square Miles	Acres
1	Salt Creek North	7.7	4,910.6
2	Salt Creek Central	12.4	7,911.0
3	Salt Creek South	7.9	5,045.9
4	Salt Creek Southeast	12.5	7,995.0
5	Devon Avenue Tributary	3.2	2,020.5
6	Spring Brook Creek	14.8	9,443.5
7	Westwood Creek	5.9	3,798.4
8	Sugar Creek	4.1	2,608.1
9	Oak Brook Tributary	1.2	762.4
10	Ginger Creek	5.4	3,433.7
11	Bronswood Tributary	3.3	2,087.6
12	Addison Creek North	4.7	3,031.2
13	Addison Creek Central	12.0	7,697.4
14	Addison Creek South	5.8	3,687.6
	Totals	100.7	64,432.9

Table 1. Subwatersheds / study units in the Lower Salt Creek Planning area.

2.1 Previous Watershed Planning and Implementation Activities

2.1.1 Water Quality-based Plans

Total Maximum Daily Loads for Salt Creek, Illinois (CH2M HILL, Inc., 2004)

This report presents the development of total maximum daily loads (TMDLs) for eight segments of Salt Creek and its tributaries Addison Creek, Spring Brook Creek, and Meacham Creek to address impairments caused by total dissolved solids/conductivity, chloride, and low dissolved oxygen. The report presents TMDLs for chlorides, carbonaceous biochemical oxygen demand (CBOD), ammonia nitrogen, and volatile suspended solids (VSS). The 2000 305(b) Report also listed copper as an impairment in Addison Creek and phosphorus as an impairment in Busse Woods Lake; however, the consultant did not develop TMDLs for these constituents due to inadequate data and recommended further monitoring in the case of copper; and cited declining phosphorus levels in Busse Lake and thereby recommended delisting. TMDLs were developed using the HSPF watershed model, BASINS, and QUAL2E water quality model, spatial data, monitoring data, and pollutant source data. Each TMDL for the Salt Creek watershed was developed to achieve full compliance with Illinois' General Use water quality standards or criteria that are correlated to the pollutant of concern. U.S. EPA approved the TMDLs in September 2004. The final TMDL report can be found at http://www.epa.state.il.us/water/tmdl/report/salt-creek/salt-creek.pdf and http://www.drscw.org/reports/SCTMDL.pdf.



DuPage River/Salt Creek Watershed TMDL Stage 1 Report (AECOM, Inc., 2009)

This report identifies 15 impaired stream segments and one impaired lake (Churchill Lagoon) for TMDL development in the DuPage River/Salt Creek watershed, based on the 303(d) list in Illinois EPA's 2008 Integrated Report. Identified impairments included total phosphorus, fecal coliform, pH, dissolved oxygen, silver, manganese, and chloride. The Stage 1 Report characterizes the watershed, verifies impairment listings in the waterbody by comparing observed data with water quality standards or appropriate targets, evaluates spatial and temporal water quality variation, provides a preliminary assessment of sources contributing to impairments, and describes potential TMDL development approaches for silver, chloride, fecal coliform, pH, dissolved oxygen, manganese, and phosphorus. (Within the Lower Salt Watershed, only the fecal coliform and pH TMDLs apply.) The Report can be found at http://www.epa.state.il.us/water/tmdl/report/dupage-salt/stage1.pdf.

Adaptive Management Plan to Improve Aquatic Life and Implement TMDLs on the Lower Salt Creek Main Stem (DRSCW, 2014)

The Adaptive Management Plan's objectives are to implement the results of the DuPage River Salt Creek Workgroup's (DRSCW) "Stream Dissolved Oxygen Improvement Feasibility Study for Salt Creek" and to implement targeted interventions to improve aquatic life. The Plan focuses on comprehensive monitoring of chemical, biological, and physical characteristics of the watershed to provide insight into the highest priority stressors affecting stream health in order to identify projects or initiatives with the greatest potential to meet stream health goals. Stressors addressed in the Plan include dissolved oxygen, chloride, polycyclic aromatic hydrocarbons, bank treatments, gravel substrate, and low fish IBI. The Plan can be found at http://www.drscw.org/reports/prioritization/LSC_SECTIONI.06262014.pdf.

DuPage River/Salt Creek Watershed TMDL Report – Revised Stage 1 Report (Tetra Tech, 2015)

This is a revised version of the DuPage River/Salt Creek Watershed TMDL Stage 1 Report developed by AECOM in 2009. In response to Illinois' Clean Water Act (CWA) Section 303(d) requirements, TMDLs need to be developed for fifteen designated waterbodies in the DuPage River and Salt Creek watershed. The preparation of this report is the first stage of the TMDL development process. The Stage 1 Report characterizes the watershed, verifies impairment listings in the waterbody by comparing observed data with water quality standards or appropriate targets, evaluates spatial and temporal water quality variation, provides a preliminary assessment of sources contributing to impairments, and describes potential TMDL development approaches for silver, chloride, fecal coliform, pH, dissolved oxygen, manganese, and phosphorus. (Within the Lower Salt watershed, only the fecal coliform and pH TMDLs apply.) This revised report acknowledges that two waterbodies within the Lower Salt Creek watershed – RGG (Churchill Lagoon) and GLA-04 (Addison Creek) – have been removed from the TMDL project, despite that figures throughout the report still make reference to these waterbodies. (Many of these figures were previously developed by AECOM under contract with Illinois EPA.) A link to the report can be found on the DRSCW website under the "Watershed Plans" dropdown of the "Projects" tab (http://drscw.org/wp/wpcontent/uploads/2015/03/Updated-STAGE-1 DRAFT DuPageSaltTMDL -11-16-2015.pdf).



DuPage River/Salt Creek Watershed TMDL – DRAFT Stage 3 Report (DRSCW, 2016)

This is the Stage 3 report of the initial DuPage River/Salt Creek Watershed TMDL Stage 1 report developed by AECOM in 2009. The report gives an overview of the technical approaches used to calculate the TMDLs for fecal coliform, chloride, and dissolved oxygen; and summarizes the TMDLs for the 15 identified impaired stream segments—four of which are located within the Lower Salt Creek watershed planning area. Additionally, the document gives a brief overview of the Stage 2 report, which summarizes DRSCW's sediment and oxygen demand data collection efforts in the watershed, and provides updates on changes that have taken place since the Stage 1 reporting. There are two updates that are applicable to the Lower Salt Creek watershed: 1) Two impaired waters—a segment of Addison Creek (GLA-04) and Churchill Lagoon (RGG)—were removed from this TMDL/LRS project; and 2) there are a handful of impairments that were determined to not exceed water quality standards for stream segments within the planning area.³ Once the report is finalized, it can be found at http://www.epa.illinois.gov/topics/water-quality/watershed-management/tmdls/reports/index#dupsalt.

Indian Lake Restoration and Protection Plan (NIPC, 1997)

Swan Lake (formerly Indian Lake), located at Brookfield Zoo in Cook County, is a small but picturesque lake that had experienced a number of water quality issues over the years, including floating algae mats, pungent odors, and even fish kills. Because the lake is such an important part of the Zoo's overall environmental stewardship program, staff from the Zoo and the Northeastern Illinois Planning Commission (CMAP's predecessor) conducted an intensive, three-year Clean Lakes Program diagnostic/feasibility study to determine the best approaches to safeguard the lake's health and provide improved aquatic habitat. Completed in 1997, the primary objectives of the restoration and projection plan were to:

- Reduce water level fluctuations,
- Reduce nuisance growth of algae,
- Preserve and enhance the lake for Zoo collection waterfowl,
- Promote sustainable native fish and wildlife populations,
- Augment and diversify aquatic plant communities,
- Control shoreline erosion,
- Devise and conduct an on-going lake monitoring program,
- Establish recordkeeping protocol for all lake-related information, and
- Implement education programs to enhance the public's knowledge of lake ecosystems.

With the help of an Illinois Clean Lakes Program Phase 2 grant, several implementation projects to rehabilitate and protect the lake's ecological and cultural qualities were completed from 1998 through 2001. Major initiatives included the installation of an aeration system to fully destratify and mix the lake, an alum application to precipitate and inactivate phosphorus, planting of

³ 2) Nickel in Salt Creek (GL-10) and Addison Creek (GLA-02); and pH in Salt Creek (GL-10).



submergent and floating-leaved aquatic vegetation in the lake, planting of emergent vegetation along the shoreline, creating a wetland vegetation area contiguous to the lake, developing a public education program, and establishing a water quality monitoring program and record keeping protocol.

2.1.2 Flood Mitigation-based Plans

Watershed Plan for Addison Creek Tributaries (CBBEL, 2002)

This plan presents the results of a hydrologic and hydraulic analysis for the Addison Creek Watershed in the Village of Bensenville and unincorporated DuPage County. The analysis consisted of data review, field reconnaissance, a hydraulic structure and cross-section field survey, a detailed residential and commercial structure low-entry elevation survey, enhancing hydrologic and hydraulic computer analyses, an existing conditions and with-project conditions economic model, flood reduction alternative analyses, and an opinion of probable costs. The purpose of the plan was to determine inundation areas in unmapped reaches, establish the flood elevation of structures adjacent to Addison Creek tributaries, and recommend flood reduction projects to remove structures from inundation for the 100-year design storm event.

A link to the plan can be found on DuPage County Stormwater Management's "Watershed Plans" webpage (<u>http://www.dupageco.org/EDP/Stormwater_Management/51479/</u>) under the "Addison Creek Tributaries Watershed" subheading.

Upper Des Plaines River Tributaries Watershed Plan for Willow-Higgins Creek, Bensenville Ditch, Crystal Creek, and Addison Creek Tributaries (CBBEL, 2004)

This plan provides a stormwater and floodplain management framework for changing conditions within several subwatershed drainageways in the Upper Des Plaines River watershed in DuPage and Cook Counties. The watershed planning information presented in the report includes watershed characteristics (hydrology and hydraulics), existing flooding and drainage patterns, proposed creek relocations, discussions of wetland and wetland buffer impacts and mitigation, and riparian impacts and mitigation. Flooding mitigation strategies include increased detention storage and increased culvert sizes. The Plan also outlines measures to mitigate impact on wetlands and riparian areas. Furthermore, the Plan addresses the benefit to water quality as a result of the O'Hare Modernization Program and mitigation measures.

A link to the plan can be found on DuPage County Stormwater Management's "Watershed Plans" webpage (<u>http://www.dupageco.org/EDP/Stormwater_Management/51479/</u>) under the "Des Plaines River Watershed" subheading.

Spring Brook Tributary to Salt Creek Watershed Plan (2006)

The main goals of this plan (2006 Plan) are to address flood damages to building structures and associated flood damages, and reduce maintenance costs for flood control facilities. Associated flood damages include damages to lawns, landscaping and gardens, traffic disruption of residential streets, and incidental expenses caused by flooding. The 2006 Plan includes four



structural components to address flooding along Spring Brook Creek: modification of the labyrinth weir at the Meacham Grove Reservoir (completed in August 2011), replacement of the Foster Avenue culvert (completed in December 2012), replacement of the culverts at the private drive upstream of Foster Avenue (scheduled to be completed in 2016), and construction of a drainage swale to facilitate drainage of Foster Avenue. Currently, there are no plans to construct the drainage swale since the project requires property acquisition.

Addendum to the Spring Brook Tributary to Salt Creek Watershed Plan (Hey and Associates, Inc., 2011)

Following the adoption of the 2006 Plan (see above), DuPage County experienced some significant and intense storm events which caused flooding throughout the Spring Brook watershed. As a result, the County revisited recommendations in the 2006 Plan and investigated some additional flood control alternatives. The Addendum focuses on three main objectives:

- 1. Optimize the Meacham Grove Reservoir to capture the most floodwater volume for the widest variety of storm events to reduce upstream and downstream residential and commercial property damages.
- 2. Reduce overtopping of a detention pond causing flood damages to a structure adjacent to the Springbrook Shopping Center and overtopping of Lake Street that potentially contributes to traffic damages.
- 3. Evaluate potential projects or alternatives that might reduce overbank flooding within the Village of Itasca in the downtown area and at the Itasca Country Club golf course.

Water quality issues and potential improvements are also noted, as well as a number of streambank stabilization projects. A link to the plan can be found on DuPage County Stormwater Management's "Watershed Plans" webpage

(<u>http://www.dupageco.org/EDP/Stormwater_Management/51479/</u>) under the "Salt Creek Watershed" subheading.

Detailed Watershed Plan for the Lower Des Plaines River Watershed: Volume 1 (CBBEL, 2011)

Prepared for the Metropolitan Water Reclamation District of Greater Chicago (MWRD), the Detailed Watershed Plan (DWP) seeks to address regional problem areas along open waterways in the Lower Des Plaines River watershed within Cook County. The primary goals of the DWP are to:

- Document stormwater problem areas,
- Evaluate existing watershed conditions using hydrologic and hydraulic models,
- Produce flow, stage, frequency, and duration information about flood events along regional waterways,
- Estimate damages associated with regional stormwater problems, and
- Evaluate potential solutions to regional stormwater problems.



Recommended strategies to mitigate flooding include streambank stabilization, flood control storage, mitigation storage, conveyance, floodwall, road raise, and levee enhancement. Costbenefit ratios were developed for each recommendation, in addition to noneconomic criteria such as water quality impact, number of structures protected, and impact on wetland and riparian areas. The DWP can be found at:

https://www.mwrd.org/pv_obj_cache/pv_obj_id_63C0EEB5F14DE064F3519B0C68C30C9F3BCD_8600/filename/Final_LDPRDWP.pdf.

2.1.2 Water Quality-based Implementation Projects

Numerous projects aimed at protecting or improving water quality have been implemented throughout the Lower Salt Creek planning area (Table 2, Table 3, Figure 6). Several have been supported by federal or state grant programs including the federal Nonpoint Source Pollution Control "Section 319" Program administered through Illinois EPA, the Illinois Clean Lakes Program, the Illinois Green Infrastructure Grant (IGIG) program, and the state's Streambank Stabilization and Restoration Program (SSRP) administered by the Illinois Department of Agriculture through county Soil and Water Conservation Districts. Numerous other BMP projects have been supported by local grant funds such as DuPage County's Water Quality Improvement Program or MWRD's Stormwater Management Program.

Sı	ubwatershed / Study Unit		Fur	ding Pro	gram	
#	Name	319	Clean Lakes	IGIG	SSRP	Other BMPs
1	Salt Creek North	9	0	0	1	2
2	Salt Creek Central	4	0	0	0	16
3	Salt Creek South	1	0	0	0	2
4	Salt Creek Southeast	10	3	1	0	2
5	Devon Avenue Tributary	0	0	0	0	1
6	Spring Brook Creek	4	0	0	0	4
7	Westwood Creek	0	0	0	0	4
8	Sugar Creek	0	0	1	0	2
9	Oak Brook Tributary	0	0	0	0	0
10	Ginger Creek	0	0	0	0	1
11	Bronswood Tributary	0	0	0	0	1
12	Addison Creek North	0	0	0	0	2
13	Addison Creek Central	5	0	0	0	5
14	Addison Creek South	0	0	2	0	0
	Totals	33	3	4	1	42

Table 2. Water quality-based implementation projects by subwatershed.

<u>http://www.rmms.illinois.edu/RMMS-JSAPI/</u> (accessed September 14, 2017). The "Other BMPs" were submitted to CMAP by watershed stakeholders through a web-based survey tool.



⁴ Counts for the 319, Clean Lakes, IGIG, and SSRP supported projects were derived from

Municipality	# of Completed Projects	Municipality	# of Completed Projects
Addison	8	Northlake	6
Bensenville	1	Oak Brook	1
Bellwood	1	Oakbrook Terrace	1
Brookfield	10	Roselle	3
Elk Grove Village	4	Villa Park	15
Elmhurst	5	Westchester	6
Itasca	8	Westmont	2
La Grange	1	Wood Dale	6
La Grange Park	1	Unincorporated Areas	4
		Total	83

Table 3. Water quality-based implementation projects by municipality.



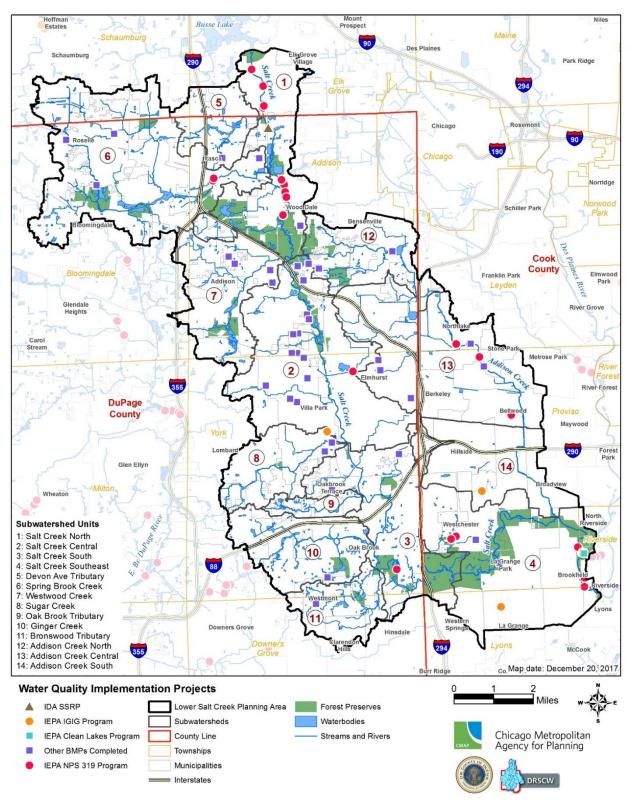


Figure 6. Water quality-based implementation projects within the Lower Salt Creek planning area.

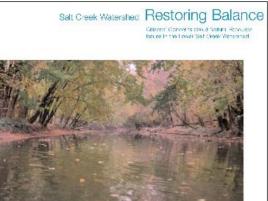


2.1.3 Outreach and Education Publications

Restoring Balance: Citizen's Concerns about Natural Resource Issues in the Lower Salt Creek Watershed (SCWN, 2002)

This booklet represents the efforts of the Salt Creek Watershed Network (SCWN) to identify problem areas and share a vision of Salt Creek's future. The group envisions people making better decisions about how they manage the land, how they manage the water that flows off the land, and what they can do to participate in the enhancement, protection, and preservation of the creek. The report identifies eight issues and related actions to restore balance in the watershed. The eight issues are:

- 1. Water quality
- 2. Streambank maintenance
- 3. Habitat
- 4. Flooding
- 5. Land use
- 6. Public policy
- 7. Public awareness/education
- 8. Recreation



Recommended actions vary by issue, but many actions are common across issues, including education, developing partnerships, and ordinance enforcement. The report can be found at <u>http://www.saltcreekwatershed.org/newsletters-and-publications/.</u>

Salt Creek: A Resource Worth Preserving – Best Management Practices for Reducing Non-Point Source Pollution (NIPC, SCWN, and IEPA, 2004)

Developed by the Northeastern Illinois Planning Commission and Salt Creek Watershed Network with funding support from the Illinois EPA, this manual provides local governments and other landowners with cost-effective techniques to help improve the quality of Salt Creek. The manual covers the following best management practices (BMPs) and outlines ideas for implementation:

- Public green space management
- Natural landscaping, buffers, swales and filter strips
- Rain barrels, cisterns, and rain gardens
- Reduced road salt impacts
- Bioengineered streambank stabilization
- Naturalized detention basins
- Infiltration practices
- Green roofs

The manual can be accessed at <u>http://www.saltcreekwatershed.org/newsletters-and-publications/.</u>





Salt Creek: A Resource Worth Preserving – Guide for Funding Watershed Improvements and Projects (NIPC, SCWN, and IEPA, 2004)

In association with the BMP manual noted above, a companion booklet was produced to provide information on funding for water quality and watershed improvement projects. The guide is divided into three categories: Water Quality; Habitat and Wetlands; and Land Conservation, Recreation, and General Environment. The guide lists organizations to contact for funding as applicable to each of the three categories. However, the grant program and contact information is now outdated.

Salt Creek: A Resource Worth Preserving – Watershed Brochure and Map (NIPC, SCWN, and IEPA, 2004)

The third piece of SCWN's education and outreach strategy was a full-color informational brochure. On one side, it described the Salt Creek Watershed Network (SCWN), the geography and history of the watershed, present challenges, and what citizens could do to help protect Salt Creek. On the other side (Figure 7), it included a map of the entire Salt Creek watershed showing waterbodies (streams, lakes, and ponds), open space, golf courses, roadways, and counties. Three inset maps provided locational context, land use, and municipalities within the watershed.



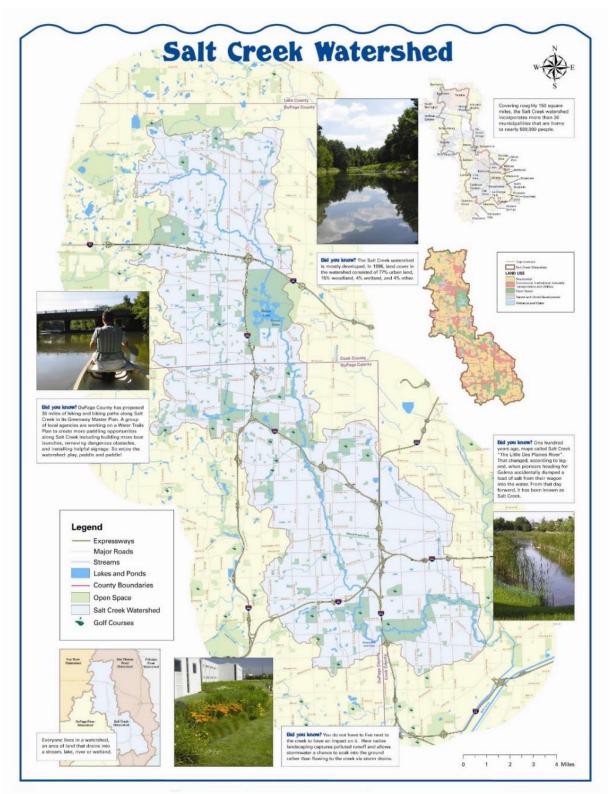


Figure 7. Salt Creek Watershed map from 2004 brochure.



2.2 Problem Statement and Goals

During the planning process, stakeholders developed the following problem statement and watershed goals:

Problem Statement: Surface waterbodies are impacted by a variety of nonpoint sources of pollution. Within the Lower Salt Creek watershed planning area, data indicates that Salt, Addison, Spring Brook, and Meacham Creeks and Swan Lake fail to meet certain water quality standards and thus do not attain all of their designated uses due to both known and unknown causes of pollution often related to land use. Best management practices, programs, and policies must be identified and implemented by landowners and managers as resources allow to improve water quality and to restore designated use attainment. A plan will be completed that outlines protective actions to address nonpoint source pollution and guide remedial activities during the following ten years.

- **Goal:** Improve and protect the ecological integrity of surface water resources to attain or maintain designated uses of aquatic life support, fish consumption, primary contact, and aesthetic quality.
- **Goal:** Protect, restore, and expand natural areas and increase native aquatic and terrestrial plant and animal species diversity.
- **Goal:** Reduce flooding and attendant streambank and shoreline erosion and infrastructure risk through initiatives to improve and protect water quality.
- **Goal:** Continue to build, strengthen, and support local partnerships and expertise to protect streams, lakes, and wetlands via plan implementation.
- **Goal:** Continue to raise public awareness and increase understanding of the impacts of land use and land/water management decisions on water and habitat quality, and further encourage implementation of watershed protection practices.



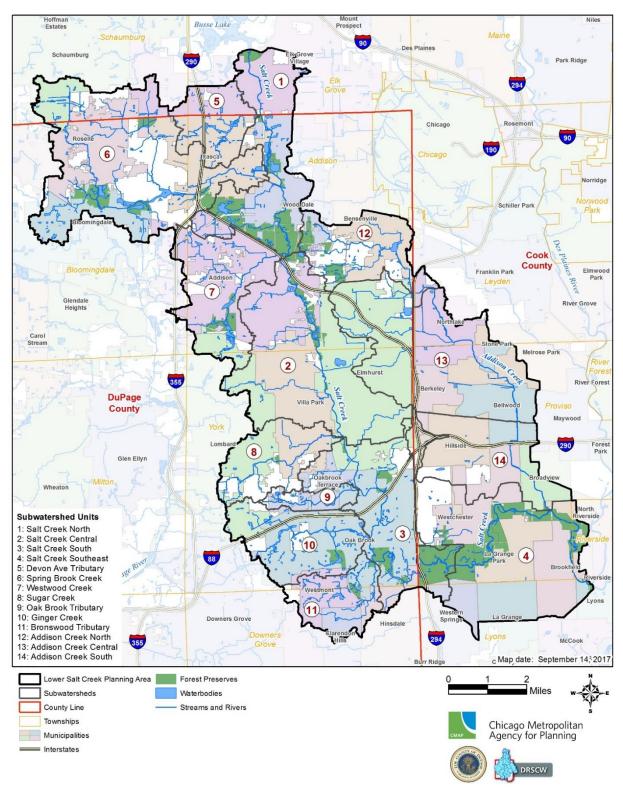
3. Watershed Resource Inventory

3.1 Local Governments and Districts

In northeastern Illinois, over 1,200 units of government collect revenues and provide services to the seven-county region's residents, businesses, and visitors. Portions of 34 municipalities and 11 townships are included in the Lower Salt Creek planning area (Figure 8,Table 5). Municipal jurisdictions cover approximately 85 percent (85.6 square miles) of the planning area. Among the townships intersecting the planning area, Addison and York Townships cover the most land area at 26.6 and 27.5 square miles, or 27.3 and 26.4 percent, respectively.

There are 13 public library buildings and 25 library districts that can play an important role in the education component of the plan. There are also 35 public or private elementary/secondary/ community college schools and districts located within or intersecting the Lower Salt Creek planning area. There are seven municipal sanitary districts, 11 wastewater treatment facilities, and two mosquito abatement districts. Lastly, there are 32 municipal park districts, the Forest Preserve Districts of DuPage County and Cook County, and Illinois DNR which also have land management jurisdiction within the watershed planning area.









Jurisdiction	Area Area (sq. (acres) miles)		Percent of Planning Area	
Municipality				
Addison	8.4	5,362.8	8.3	
Bellwood	2.4	1,532.4	2.4	
Bensenville	2.2	1,388.8	2.2	
Berkeley	1.4	890.0	1.4	
Bloomingdale	2.6	1,653.0	2.6	
Broadview	1.1	707.5	1.1	
Brookfield	2.6	1,660.5	2.6	
Chicago*	0.0	0.7	0.0	
Clarendon Hills	0.7	450.5	0.7	
Downers Grove	0.1	37.0	0.1	
Elk Grove Village	3.8	2,435.6	3.8	
Elmhurst	10.3	6,595.5	10.2	
Franklin Park*	0.0	2.3	0.0	
Hillside	2.5	1,604.7	2.5	
Hinsdale	0.9	570.4	0.9	
Itasca	5.1	3,272.7	5.1	
La Grange	1.5	967.6	1.5	
La Grange Park	2.2	1,435.8	2.2	
Lombard	4.2	2,712.7	4.2	
Lyons	0.2	122.9	0.2	
Maywood*	0.0	16.8	0.0	
Melrose Park	1.5	936.3	1.5	
North Riverside	0.3	164.3	0.3	
Northlake	2.7	1,748.4	2.7	
Oak Brook	8.3	5,306.2	8.2	
Oakbrook Terrace	1.3	851.8	1.3	
Roselle	3.9	2,497.0	3.9	
Schaumburg	1.1	734.4	1.1	
Stone Park	0.3	213.8	0.3	
Villa Park	4.8	3,056.1	4.7	
Westchester	3.3	2,087.8	3.2	
Western Springs	1.0	628.7	1.0	
Westmont	1.6	1,048.4	1.6	
Wood Dale	3.3	2,103.8	3.3	
Unincorporated Areas	15.1	9,636.1	15.0	
1110405				

Table 4. Municipalities and townsh	ips within the Lower	Salt Creek planning area.
		oun oreen plumming area.

Jurisdiction	Area (sq. miles)	Area (acres)	Percent of Planning Area	
<u>Township</u>				
Addison	26.6	17,008.9	26.4	
Bellwood	10.6	6,802.0	10.6	
Chicago*	0.0	0.0	0.0	
Downers Grove	2.6	1,648.6	2.6	
Elk Grove	3.4	2,192.8	3.4	
Leyden	2.2	1,408.3	2.2	
Lyons	3.5	2,250.7	3.5	
Proviso	20.8	13,293.7	20.6	
Riverside	0.5	307.5	0.5	
Schaumburg	3.0	1,928.6	3.0	
York	27.5	17,591.8	27.3	
Totals	100.7	64,432.9	100.0	

* There are a few municipalities and townships with an insignificant portion of its boundary within the planning area, which in effect is calculated as 0.0 square miles and/or 0.0 percent of planning area. For example, 0.00000387546 square miles of Chicago falls within the planning area and appears to have an area and percent of planning area of 0.0.



3.2 Population and Demographics

Population (2010) in the planning area is estimated to be 374,699 people, 0.64 percent less than the 2000 population of 377,114.⁵ The change in population was considerably less than the 3.3 percent increase for the state of Illinois during the same interval. CMAP's GO TO 2040 comprehensive regional plan (updated version, October 2014) forecasts a population of 504,931 which is a 34.7 percent increase in growth. The difference in population over the intervening 30 years translates into a (linear) growth rate of approximately one percent per decade.⁶ While this may seem nominal, it is a substantial increase in estimated population growth for an area that saw no growth in the last decade. The increase in growth also exceeds the 28.6 percent growth forecast (population in households in 2040) for the entire seven county region.⁷

Employment forecasts are similarly relevant in that growth will impact land use change, water use, water quality, and other factors. The revised GO TO 2040 forecast totals for the region estimate employment growth to be 9.94 percent for the Lower Salt Creek watershed planning area (18.3 and 26.2 percent growth for Cook and DuPage County, respectively) and 31.2 percent for the region.⁸

Table 5 and Figure 9 - 12 present demographic data that characterize the planning area.

Characteristic	LSC	Cook Co.	DuPage Co.	Illinois
Median age	40	35	38	37
Age 65 & over	13.9%	11.9%	11.6%	12.5%
< 5 years of age	6.1%	6.6%	6.2%	6.5%
< 18 years of age	24.2%	23.7%	24.8%	24.4%
Female population	51.3%	51.6%	51.0%	51.0%
Race/One Race/White	74.1%	55.4%	77.9%	71.5%
Housing Tenure – Owner Occupied	71.0%	58.2%	74.7%	67.5%

Table 5. Select Lower Salt Creek planning area, county, and state demographic data.

⁸ Ibid.



⁵ U.S. Census Bureau census block data for 2000 and 2010. "Clipping" census blocks with the planning area boundary using ESRI ArcMap v10.1 geoprocessing tools will result in an overestimate of population.

⁶ CMAP population and employment forecasts are based on subzone geography or a unit of geography that is different from census blocks or tracts. A subzone is equivalent to a quarter section. All the people in a subzone will be included in the forecast for the planning area despite "clipping" subzones that are intersected by the outer planning area boundary. Thus, a limited yet unknown number of people are included in the planning area forecast that technically will reside just outside of the planning area.

⁷ Chicago Metropolitan Agency for Planning, GO TO 2040 Update Appendix: Socioeconomic Forecast Update Overview, 2014, <u>http://www.cmap.illinois.gov/documents/10180/332742/Update+Socioeconomic+Forecast+FINAL.pdf/41d87400-</u> d211-4763-b941-b487022d8032

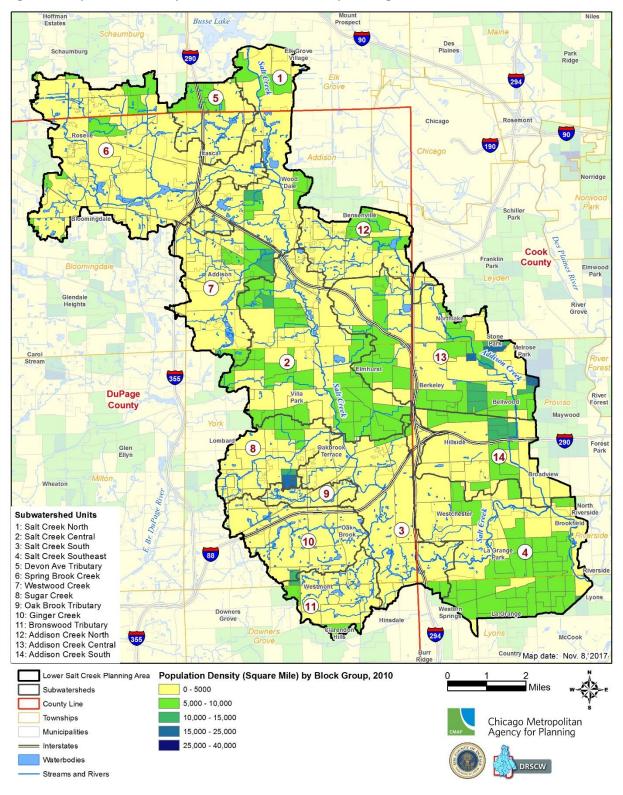


Figure 9. Population density in the Lower Salt Creek planning area, 2010.



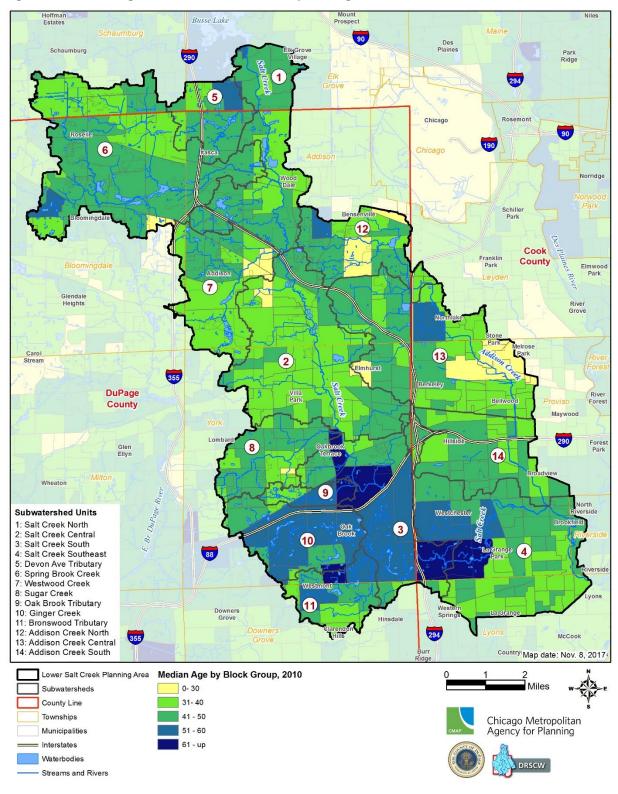
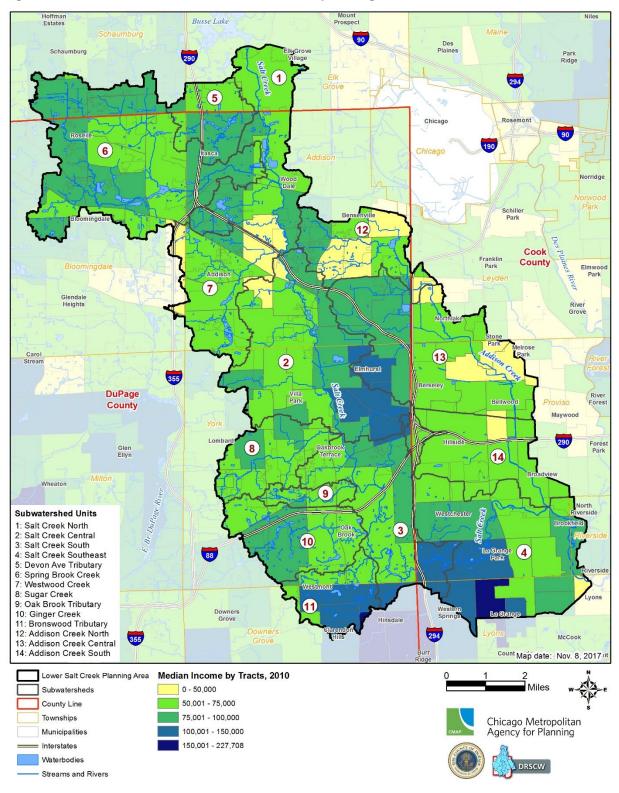


Figure 10. Median age in the Lower Salt Creek planning area, 2010.









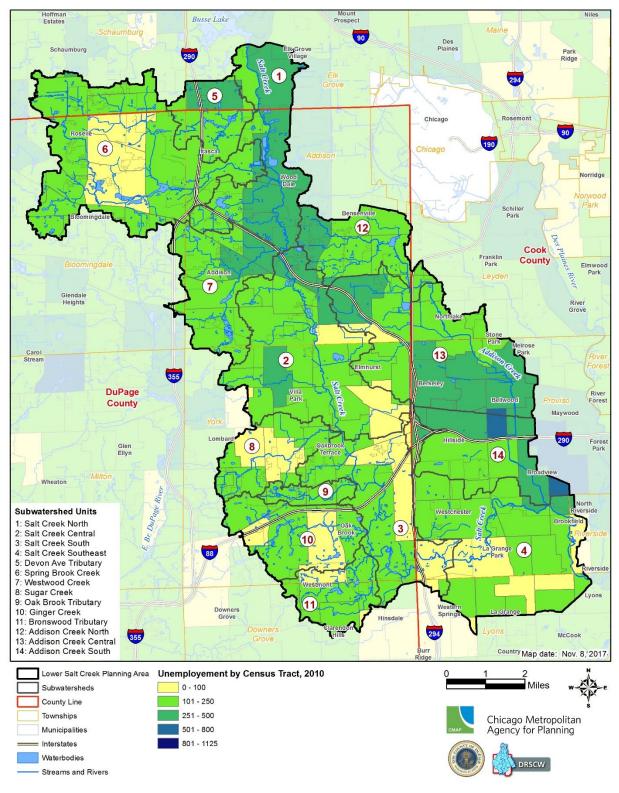


Figure 12. Unemployment in the Lower Salt Creek planning area, 2010.



3.3 Physical and Natural Features

3.3.1 Climate

The planning area has a continental climate with warm summers and cold winters. The average annual temperature is 49.9°F. January is the coldest month with an average temperature of 23.8°F (31.0.°F average high/16.5°F average low) while July is the warmest with an average of 74.0°F (84.1°F average high/63.9°F average low). Annual precipitation averages 36.89 inches. Consistent with a continental climate, there is no pronounced wet or dry season.⁹

Meteorological winter features the three driest months (December 1.25 in., January 1.73 in., and February 1.79 in.) while meteorological summer features the wettest months (June 3.45 in., July 3.70 in., and August 4.90 in.) Spring and fall are similar for their average seasonal precipitation totals, 9.56 and 9.51 in. respectively.¹⁰

The climate is notable for two reasons: 1) the threat of rainstorms and resultant nonpoint source pollution is a year-round phenomenon, and 2) the lengthy winter season in combination with an extensive road and parking lot network results in large amounts of applied road salts whose fate has a negative impact on both local surface waters¹¹ and shallow groundwater¹².

3.3.2 Topography

Elevation within the planning area ranges from a high of 827 feet above mean sea level (MSL) to a low of 490 feet MSL, for total relief of 337 feet. The highest elevations are generally in the northwest and southwest with lowest elevations to the southeast and at the Elmhurst Quarry Reservoir (Figure 13).

¹⁰ Ibid.

¹² Walton R. Kelly and Steven D. Wilson, 2008. "An Evaluation of Temporal Changes in Shallow Groundwater Quality in Northeastern Illinois Using Historical Data," *Illinois State Water Survey, Center for Groundwater Science. Scientific Report* 2008-01, 2008.



⁹ U.S. Department of Commerce, National Oceanic & Atmospheric Administration, 1981-2010 Station Normals of *Temperature, Precipitation, and Heating and Cooling Degree Days, Station: Chicago O'Hare International Airport, IL US*, by National Climatic Data Center, Asheville, North Carolina, 2013. Requested and received on 02/09/2017.

¹¹ Illinois Environmental Protection Agency, Bureau of Water, *Illinois Integrated Water Quality Report and Section 303(d) List*, 2012. Illinois: IEPA, 2012, <u>http://www.epa.state.il.us/water/tmdl/303-appendix/2012/iwq-report-surface-water.pdf</u> (accessed February 2, 2015)

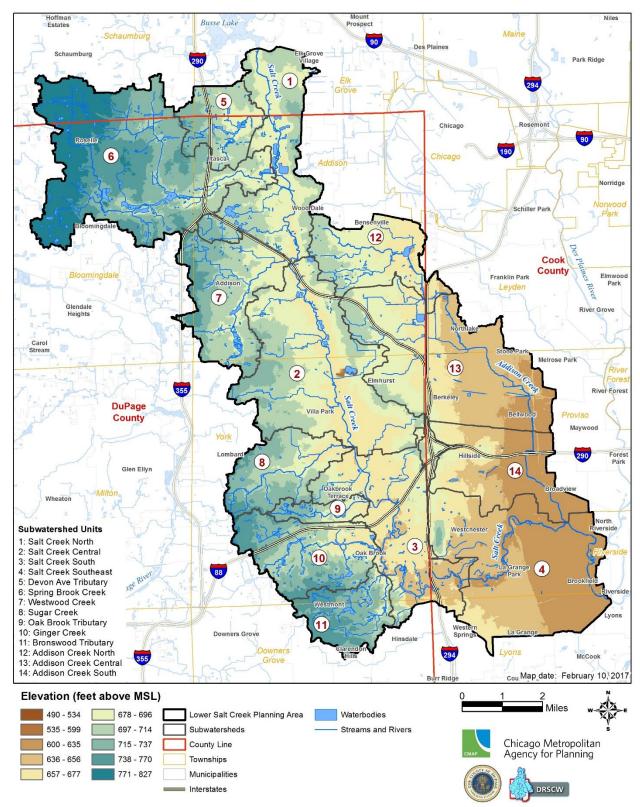


Figure 13. Elevation in the Lower Salt Creek planning area.



Chicago Metropolitan Agency for Planning

Lower Salt Creek Watershed-Based Plan

3.3.3 Ecoregion Geography

Ecoregions have been composed as a robust geographic framework based on the principle that they can be identified and mapped by analyzing the spatial patterns and composition of observable biotic and abiotic factors that either affect or reflect differences in ecosystem quality and integrity.¹³ Put another way, ecoregions organize space around ecosystems that are similar and take into consideration such phenomena as geology, physiography, climate, soils, hydrology, wildlife, vegetation, soils, and land use. Ecoregion maps are useful in the development of ecosystem management strategies, especially since land use – human alteration and occupation of the land – informs ecoregion delineation at levels III and IV which are smaller (i.e., spatial extent) subdivisions of levels II and III, respectively.

The planning area lies entirely within the Central Corn Belt Plaines (Level III), and is characterized by the Valparaiso-Wheaton Morainal Complex as well as the Chicago Lake Plain ecoregions (Level IV) at 91.1 and 9.6 square miles, respectively.¹⁴ While perhaps not as relevant here as within areas of greater spatial extent that also feature large federal or state land holdings, the information can be instructive nonetheless to more local land conservation efforts. The Valparaiso-Wheaton Morainal Complex exhibits a landscape shaped by glaciation – rolling till plains, moraines, outwash plains and a disconnected drainage system comprised of kettle holes, ravines, small lakes, and marshes. The Chicago Lake Plain exhibits a paleo-lake plain that is nearly flat with morainal and bedrock ridges, swales sand dunes, as well as paleo-spits. Ecosystem management strategies are likely to be differ across the two ecoregions with respect to their physiography (Figure 14).¹⁵

3.3.4 Surficial Geology

Surficial geology is important because it can help guide land use planning and land management practices. Understanding the composition of geologic materials can shed light on areas that are sensitive to contamination and in need of protection, potential aquifer recharge areas, land that is suitable for reservoirs, as well as drainage and weight bearing properties that are useful for siting future development and infrastructure.¹⁶ Figure 15 shows the planning area is primarily dominated by fine grain matrix of diamicton deposits as till and ice-marginal



¹³ US Environmental Protection Agency, Western Ecology Division, *Models, Statistical Program and Data Sets: Ecoregion Maps*. Available at <u>http://www.epa.gov/wed/pages/ecoregions.htm</u>

¹⁴ "Level III and IV Ecoregions by State," US Environmental Protection Agency, last accessed October 26, 2016, <u>https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-state</u>

¹⁵ US Environmental Protection Agency, *Summary Table: Characteristics of the Ecoregions of Illinois*, nd, <u>ftp://newftp.epa.gov/EPADataCommons/ORD/Ecoregions/il/il_back.pdf</u> (accessed October 26, 2016)

¹⁶ J.E. Bogner et al., "Geology for Planning in Northeastern Illinois: I. Geologic Framework, Project Goals, and Procedures," *Illinois State Geological Survey*, May 1976.

sediment—a product of surface deposits from the most recent glaciation, the Wisconsin Episode. These have formed a combination of end and ground moraines across the Lower Salt Creek planning area. In addition to diamicton deposits, bedded silts, clays, as well as sand and gravel deposits surround Salt Creek and some of its western tributaries. These are commonly found along the floodplains and channels of modern rivers and streams throughout DuPage and Cook Counties.¹⁷ The Lower Salt Creek watershed also exhibits a bedrock of Silurian sedimentary rock that is covered with unconsolidated surficial deposits, averaging 20 to 100 feet thick.¹⁸ Collectively, the composition of the watershed's surficial geology highlights that the area has relatively poor drainage and few potential areas for aquifer recharge, with the exception of the alluvial sands and gravel along Salt Creek and its tributaries. These areas surrounding streams and tributaries are likely to be more susceptible to fertilizer, herbicide, and insecticide applications, and therefore, are in greatest need of protection. Floodplain and ecosystem protection as well as sustainable land management best practices should be emphasized to ensure improved water quality in streams and Lower Salt Creek watershed at large.

¹⁸ S.M. Taylor and R.H. Gilksen, "VII. Geology for Planning In DuPage County," *Illinois State Geological Survey*, February 1977.



¹⁷ State of Illinois, Department of Natural Resources, Illinois State Geological Survey, *Surficial Deposits of Illinois*, IFGS OFS 2000-7: IDNR, 2000, <u>http://isgs.illinois.edu/sites/isgs/files/maps/statewide/ofs2000-07.pdf</u> (accessed October 26, 2016)

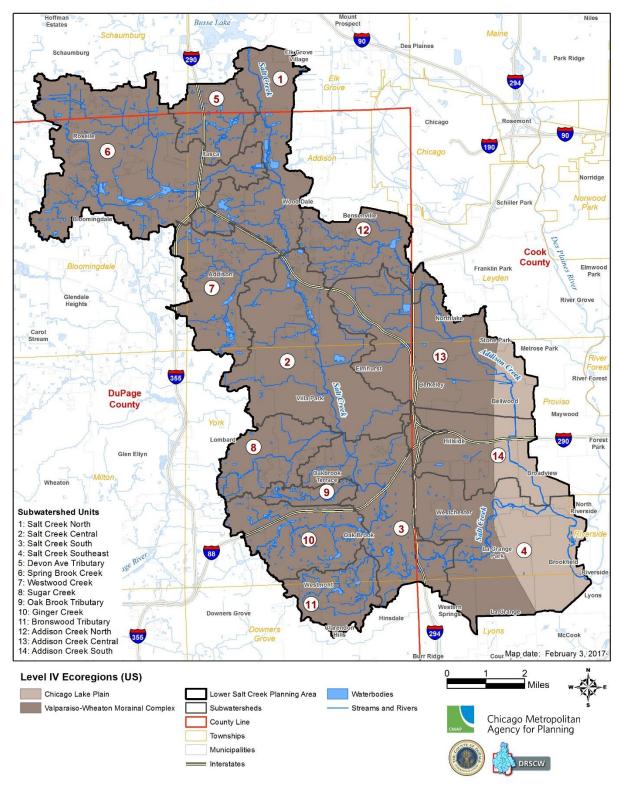


Figure 14. Ecoregions in the Lower Salt Creek planning area.



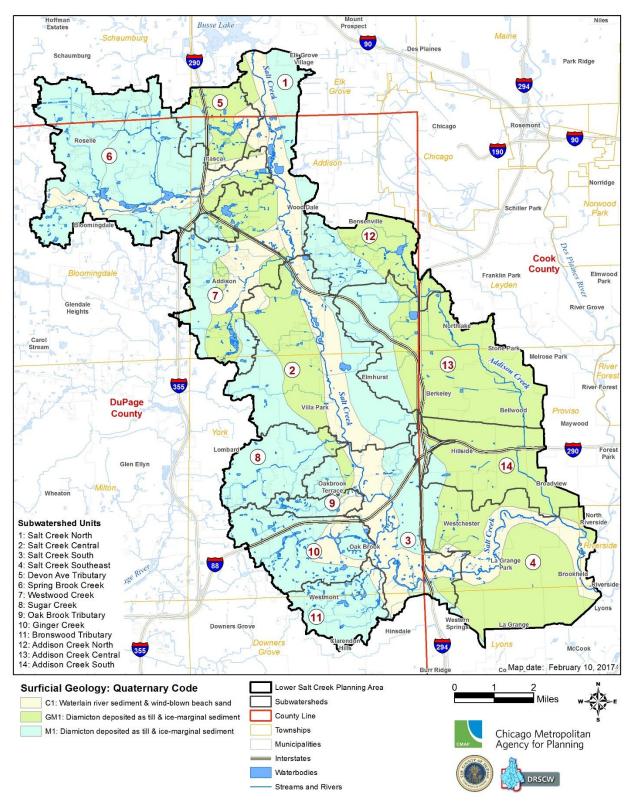


Figure 15. Surficial geology in the Lower Salt Creek planning area.



3.3.5 Soils

For purposes of this watershed plan, hydrologic soils groups, hydric soils, soil drainage class, and highly erodible soils will be discussed. It is important to consider these types of soil classifications as they relate to land use/change and water quality. The soils data are obtained from the Soil Survey Geographic (SSURGO) Database produced by the U.S. Department of Agriculture – Natural Resources Conservation Service (NRCS)¹⁹.

3.3.5.1 Hydrologic Soil Groups

Hydrologic soil groups (HSGs) feature similar physical and runoff characteristics. Along with land use, management practices, and hydrologic conditions, HSGs determine a soil's associated runoff curve number which is used in turn to estimate direct runoff from rainfall. This information is particularly useful to planners, builders, and engineers to determine the suitability of sites for projects and their design. Projects might include, for example, stormwater management systems and septic tank/field locations or more broadly, new neighborhood design.

The four hydrologic soil groups are described as A: soils with low runoff potential when wet / water is transmitted freely through the soil, B: moderately low runoff potential when wet / water transmission through the soil is unimpeded, C: moderately high runoff potential when wet / water transmission is somewhat restricted, and D: high runoff potential when wet / water movement through the soil is restricted or very restricted. If certain wet soils are able to be drained, they are assigned to dual HSGs (e.g., A/D, B/D) based on their saturated hydraulic conductivity and the water table depth when drained. The first letter refers to the drained condition and the second to an undrained condition (Table 6).

¹⁹ "Soil Geography," USDA Natural Resources Conservation Service, Soils, last accessed October 17th, 2017, <u>http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/geo/</u>



Hydrologic Soil Group	Definition/Characteristics	Area (acres)	Percent of Planning Area
Α	Soils have a low runoff potential when thoroughly wet. Water is transmitted freely through the soil.	38.9	0.06
A/D	The first letter applies to the drained condition and the second to the undrained condition.	0.0	0.00
В	Soils have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.	550.7	0.85
B/D	The first letter applies to the drained condition and the second to the undrained condition.	2,465.1	3.83
С	Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.	11,640.8	18.07
C/D	The first letter applies to the drained condition and the second to the undrained condition.	20,838.0	32.34
D	Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted.	23,120.9	35.88
Unclassified	n/a	5,778.7	8.97
	Totals	64,432.9	100.0

Table 6. Hydrologic soil groups in the Lower Salt Creek planning area.

The majority of the Lower Salt Creek planning area features group C/D and group D, approximately 32 and 36 percent, respectively (Figure 16). The unclassified soils are those underlying waterbodies, gravel pits, and highly developed land complexes along commercial, industrial, and rail corridors. There are no A/D soils present and only 38.9 acres of group A soils, located in the southeast corner of the planning area. Figure 16 illustrates a general pattern of HSG distribution, revealing that B, B/D, and C soils are found primarily along stream and river corridors where under saturated condition, infiltration is limited and runoff potential is moderately high.



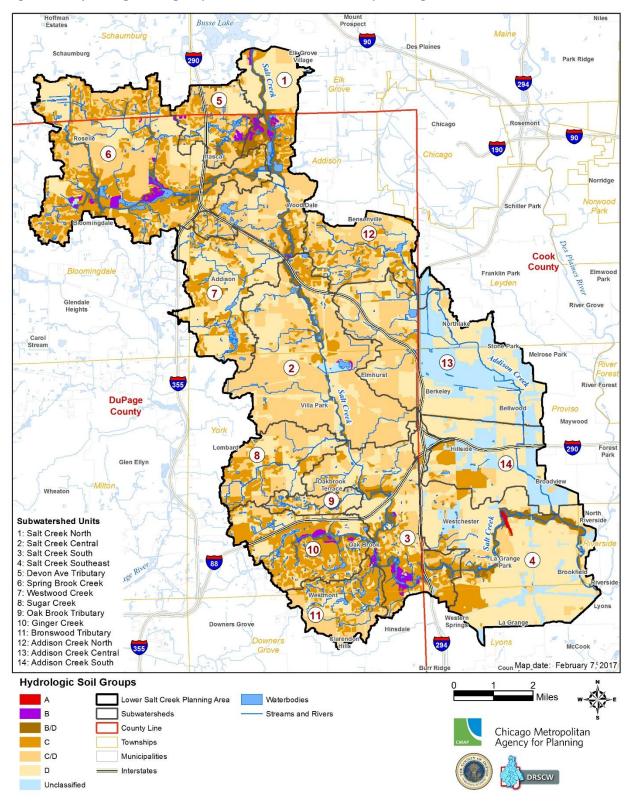


Figure 16. Hydrologic soil groups in the Lower Salt Creek planning area.



3.3.5.2 Hydric Soils

Hydric soils are those soils that developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation and are sufficiently wet in the upper part of the soil profile to develop anaerobic conditions during the growing season. The presence of hydric soils is used as one of three key criteria for identifying the historic existence of wetlands. Knowledge of hydric soils has both agricultural and nonagricultural applications including land use planning and conservation area planning. Much like an understanding of hydrologic soils groups, knowledge of the location and pattern of hydric soils can inform planners, builders, and engineers and influence their project design and location decisions.

The extent of hydric soils within the Lower Salt Creek planning area is shown in Figure 17 and enumerated in Table 7. Nearly half (73.6 percent) of the Lower Salt Creek planning area features "not hydric" soils. "All hydric" soils are distributed throughout the planning area, most commonly along stream and river corridors, and represent approximately 3.9 percent of the planning area. Muck soils are a subset of hydric soils.

Hydric Soil Class	Area (acres)	Percent of Planning Area
Nonhydric (0%)	10,157.2	15.8
Predominantly nonhydric (1 to 32%)	47,396.2	73.6
Partially hydric (33 to 65%)	12.8	0.02
Predominantly hydric (66 to 99%)	4,369.2	6.8
Hydric (100%)	2,497.6	3.9
Totals	64,432.9	100.0

Table 7. Hydric soils in the Lower Salt Creek planning area.



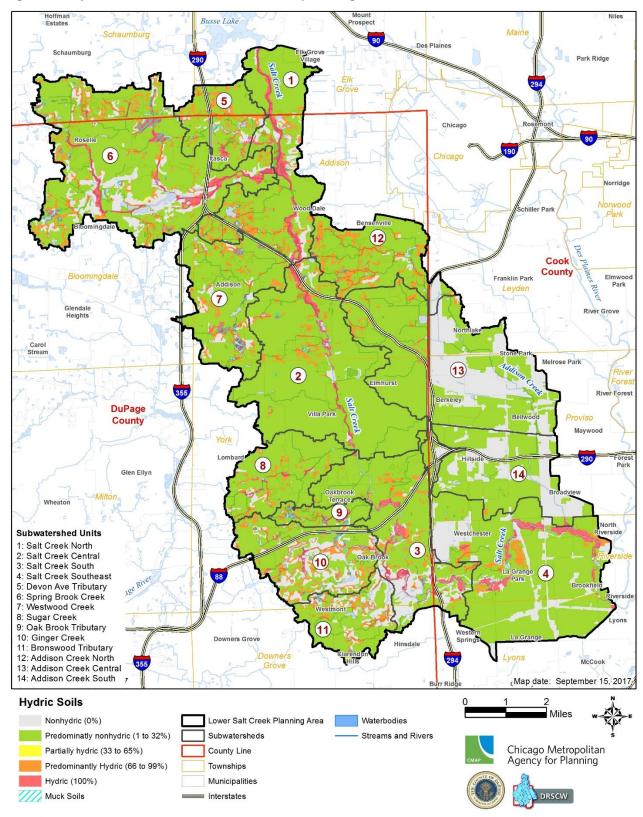


Figure 17. Hydric soils in the Lower Salt Creek planning area.



3.3.5.3 Soil Drainage Class

Soils are categorized in drainage classes based on their natural drainage condition in reference to the frequency and duration of wet periods.²⁰ The classes are Excessively Drained, Somewhat Excessively Drained, Well Drained, Moderately Well Drained, Somewhat Poorly Drained, Poorly Drained, and Very Poorly Drained.²¹ The extent of soils in these drainage classes within the Lower Salt Creek planning area is shown in Figure 18 and enumerated in Table 8.

Knowledge of soil drainage class is commonly used for agricultural applications; however, in more developed regions it can also be used for stormwater and water quality applications. For example, the Well Drained and Moderately Well Drained drainage classes (which cover approximately 41 percent of the planning area) can indicate where stormwater infiltration BMPs may best be utilized. On the other hand, excessively drained soils (38.9 acres of the planning area) may not be good locations for siting infiltration BMPs where shallow groundwater is present.

The Poorly Drained drainage classes indicate soils that are wet at shallow depths over periodic or significantly long periods of time. Soils in the Somewhat Poorly Drained, Poorly Drained, or Very Poorly Drained drainage class occur on approximately 46 percent of the planning area. These areas are often prone to frequent ponding and flooding and can be associated with increased stormwater runoff and nonpoint source pollution.

²¹ Soil Conservation Service, Soil Survey Staff. *Soil Survey Manual*. USDA Handbook 18. Washington, D.C.: USDA NRCS, 1993. <u>http://soils.usda.gov/ technical/manual/</u> (accessed September 14, 2011).



²⁰ Soil Survey Staff, USDA-NRCS. *Soil Survey Geographic (SSURGO) Database, SSURGO 2.2.6 Table Column Descriptions,* dated June 26, 2012. Available online at <u>http://soils.usda.gov/survey/geography/ssurgo/index.html</u> (accessed March 26, 2013).

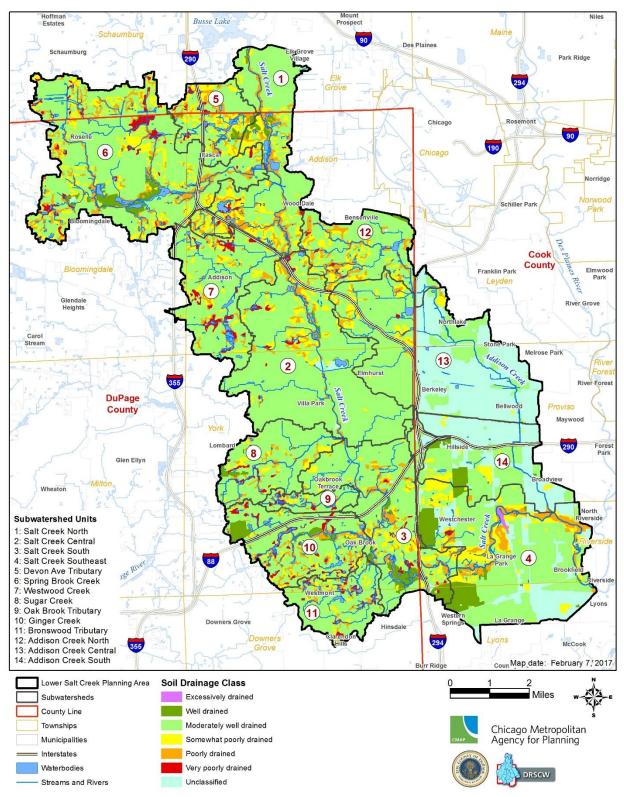


Figure 18. Soil drainage classes in the Lower Salt Creek planning area.



Soil Drainage Class	Area (acres)	Percent of Planning Area
Somewhat excessively drained	38.0	0.04
Well drained	2,040.9	3.10
Moderately well drained	40,895.3	37.71
Somewhat poorly drained	5,992.2	21.62
Poorly drained	5,583.5	17.11
Very poorly drained	1,296.1	7.51
Unclassified	8,586.2	12.91
Totals	64,432.9	100.0

Table 8. Soil drainage classes in the Lower Salt Creek planning area.

3.3.5.4 Highly Erodible Soils

The USDA – NRCS defines a highly erodible soil or soil map unit as one that has a maximum potential for erosion that equals or exceeds eight times the tolerable soil erosion rate (T).²² The maximum potential erosion rate is determined using the formula RKLS/T (where R = the rainfall factor, K = erodibility value of the soil, and LS = the slope factor). If RKLS/T > 8, then the soil meets the criteria for a highly erodible soil.²³ All soil map units with "C" slopes or greater are considered highly erodible in Illinois.²⁴ Highly erodible soils are of concern because they are primarily located along the tributaries and main stems of Salt Creek. Note that the maximum erosion potential is calculated without consideration of stream bank restoration or conservation management practices which can markedly lower the actual erosion rate.

Figure 19 illustrates the pattern of highly erodible soils in the Lower Salt Creek planning area, covering 14,694.9 acres (22.8 percent). Also keep in mind that all soils can severely erode when excavated and stockpiled; thus, erosion control practices should be planned for any human disturbance of an area.

²⁴ Bob Oja, McHenry-Lake County SWCD, personal communication, Nov. 24, 2014.



²² The soil loss tolerance rate (T) is the maximum rate of annual soil loss that will permit crop productivity to be sustained economically and indefinitely on a given soil. Erosion is considered to be greater than T if either the water (sheet & rill) erosion or the wind erosion rate exceeds the soil loss tolerance rate. The NRCS uses the Universal Soil Loss Equation (USLE) to determine a soil's erosion rate by analyzing rainfall effects, characteristics of the soil, slope length and steepness, and cropping and management practices.

²³ "RI Soil Survey - Highly erodible soil map units," USDA Natural Resources Conservation Service, Rhode Island, last accessed October 17th, 2017, <u>http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ri/soils/?cid=nrcs144p2_016637</u>

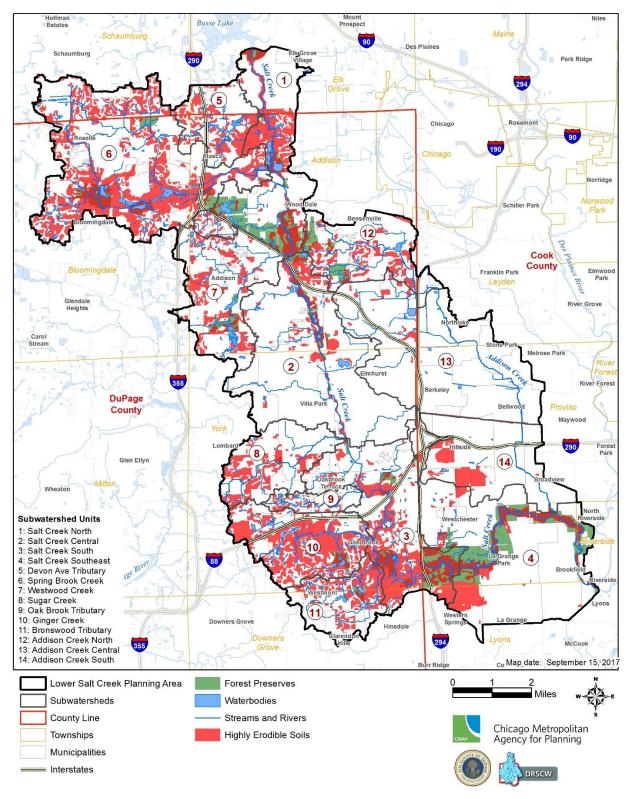


Figure 19. Highly erodible soils in the Lower Salt Creek planning area.



3.3.6 Floodplains

A floodplain is defined as "any land area susceptible to being inundated by floodwaters from any source."²⁵ The 100-year floodplain or "base flood" encompasses an area of land that has a 1-in-100 chance of being flooded or exceeded within any given year; the 500-year floodplain has a 1-in-500 chance of being flooded or exceeded within any given year. Floodways are defined by the National Flood Insurance Program as "the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height."²⁶ Floodways are a subset of the 100-year floodplain and carry the deeper, faster moving water during a flood event.

Prior to modern day floodplain and stormwater management regulations, development in the Lower Salt Creek planning area and throughout the Chicago region occurred in flood prone areas, such as floodplains, wetlands, and other low-lying areas. Before these flood prone areas were developed, they provided natural flood control in the watershed. While flooding is a natural process, the development of these lands places homes, businesses, and people in harm's way, and reduces the land's natural flood control capacity, thus pushing the water to areas that may not have flooded previously. In effect, flooding can result in property damage, streambank erosion, and degraded water quality. Thus, it is important that floodplains and their relationship to land use be considered in local plans and development codes.

Within the Lower Salt Creek watershed planning area, approximately 9.1 percent (5,845 acres or 9.1 square miles) of the planning area falls within the 100-year floodplain; and an additional 3.2 percent (2,055.9 acres or 3.2 square miles) falls within the 500-year floodplain (Table 9, Table 10, Figure 20). These calculations are based on a compilation of floodplain data CMAP received from the Federal Emergency Management Authority (FEMA) in 2017, and from DuPage County in 2015. The Spring Brook Creek subwatershed contains the most floodplains with 1,180.6 acres (2.7 square miles) followed by the Salt Creek Southeast and Salt Creek North subwatersheds with 884 acres (1.4 square miles) and 851.2 acres (1.3 square miles), respectively.

Floodplain	Area (acres)	Percent of Planning Area
100-year	5,845.0	9.1
500-year	2,055.9	3.2
Totals	7,900.9	12.3

Table 9. Floodplains in the Lower Salt Creek planning area.

²⁶ Federal Emergency Management Agency (FEMA), Floodplain Management Requirements, Appendix D: Glossary, FEMA, 2010, <u>http://www.fema.gov/pdf/floodplain/nfip_sg_appendix_d.pdf</u> (accessed October 16, 2017)



²⁵ Federal Emergency Management Agency (FEMA), Floodplain Management Requirements, Appendix D: Glossary, FEMA, 2010, <u>http://www.fema.gov/pdf/floodplain/nfip_sg_appendix_d.pdf</u> (accessed October 16, 2017)

Subwatershed / Study Unit		100-yr and 500-yr Floodplain Area		in Area
#	Name	100-yr Floodplain (acres)	500-yr Floodplain (acres)	Total (acres)
1	Salt Creek North	688.4	162.8	851.2
2	Salt Creek Central	645.1	203.9	849.0
3	Salt Creek South	673.4	150.8	824.2
4	Salt Creek Southeast	668.8	215.7	884.4
5	Devon Avenue Tributary	71.0	71.8	142.8
6	Spring Brook Creek	837.3	343.3	1,180.6
7	Westwood Creek	318.2	107.3	425.4
8	Sugar Creek	203.2	79.8	283.0
9	Oak Brook Tributary	81.9	59.0	140.9
10	Ginger Creek	289.7	105.4	395.1
11	Bronswood Tributary	106.4	22.4	128.8
12	Addison Creek North	196.4	36.9	233.2
13	Addison Creek Central	664.8	143.0	807.8
14	Addison Creek South	400.5	353.9	754.4
	Totals	5,845.0	2,055.9	7,900.9

Table 10. Floodplains by Lower Salt Creek subwatershed.



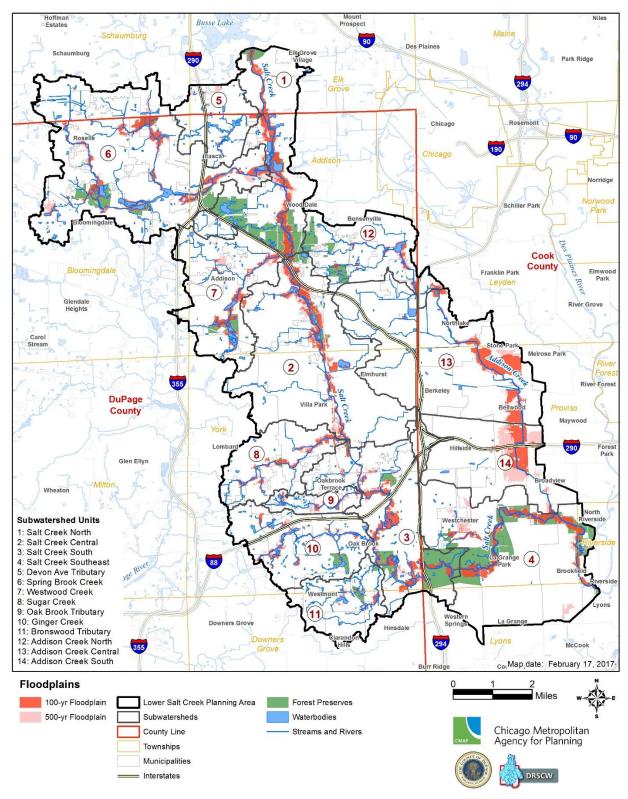


Figure 20. Floodplains in the Lower Salt Creek planning area.



3.3.7 Wetlands

Wetlands provide social, economic, and ecological benefits to communities by cleaning polluted runoff before discharging to other surface waterbodies, recharging aquifers that are used as drinking water supplies, and providing temporary storage for rainfall to reduce flooding. At the regional landscape scale, wetlands are an integral part of the movement to conserve green infrastructure and thereby employ nature to help manage hydrology in the built environment. There are many other wetland functions that generate ecosystem services that are valued by society. Despite these benefits, the extent of America's wetlands continues to decline.²⁷

Based on the National Wetlands Inventory, there are an estimated 1,927.7 acres of wetlands (approximately 3 percent of the land area) within the Lower Salt Creek Watershed planning area (Figure 21). Five classifications of wetlands are present: freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond, lake, and riverine (Table 11, Table 12). Freshwater ponds account for 675.9 acres (1 percent) of the wetland coverage in the Lower Salt Creek planning area followed by freshwater emergent wetlands with 555.7 acres (approximately 0.9 percent of the planning area). Of the subwatershed units, Salt Creek North encompasses the most wetland acres (299.3 acres) relative the unit total acreage, followed by Westwood Creek and Ginger Creek with 198.6 acres and 173.3 acres, respectively. Addison Creek South and Addison Creek Central has the least wetland acreage (17.6 acres and 81.2 acres, respectively) coverage relative to the study unit acreages. Subwatershed study units with the least amount of wetland acreage present opportunities for wetland restoration and enhancement of public and private lands.

Wetland Type		Area (acres)	Percent of Planning Area
Freshwater Emergent Wetland		555.7	0.9
Freshwater Forested/Shrub Wetland		270.9	0.4
Freshwater Pond		675.9	1.0
Lake		179.9	0.3
Riverine		245.3	0.4
	Totals	1,927.7	3.0

Over half of the wetlands present in the watershed intersect one space. However, only 446 acres are completely surrounded – 225 acres are within the forest preserves and the remaining 171 acres are located within parks or golf courses. Wetlands that are not in the forest preserves, or protected open space – present opportunities for additional protection status, such as conservation easements or

²⁷ "National Wetlands Inventory," U.S. Fish and Wildlife Service, Ecological Services, last accessed October 17, 2017, http://www.fws.gov/wetlands/Status-And-Trends-2009/index.html



acquisition. Wetlands that are within golf courses also presents opportunities for applying sustainable turf management practices to improve the overall health of the watershed.

Freshwater emergent wetlands commonly border freshwater ponds and lakes. These wetlands exhibit tall herbaceous and hydrophytic plants that are rooted under and extend out of the water. Names such as marshes, wet meadows, fens, and sloughs are considered to be emergent wetlands. Perennial plants are the most common vegetation and cover approximately 30 percent of the wetland. It is common in the Midwest region of the United States for emergent wetlands to periodically revert to an open water phase because of erratic climatic fluctuations; otherwise, they maintain the same appearance throughout all seasons.²⁸

The freshwater forested/shrub wetland is a combination of forest and scrub-shrub wetlands. These wetland complexes are likely to exhibit a wide variety of woody plants (e.g., shrubs, young and stunted trees, as well as mature trees that are of at least 20 feet tall) interspersed with herbaceous (non-woody) layer. Scrub-shrub wetlands can often be representative of a wetland transitioning into a forested wetland; this is likely the case for the freshwater forested/shrub wetlands in the Lower Salt Creek planning area. Forested wetlands are commonly found along rivers where there is abundant moisture,²⁹ and nearly 63% of the freshwater forest/shrub wetlands are located along the main tributaries of Salt Creek.

²⁹ Ibid.



²⁸ Federal Geographic Data Committee, Wetlands Subcommittee, Classification of Wetlands and Deepwater Habitats of the United States, by Lewis M. Cowardin et al. 1979. FGDC–STD-004-2013, Virginia: FDGC, 2013, <u>https://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States-2013.pdf</u> (accessed October 26, 2016).

Study Unit #	Subwatershed Unit Name	Wetland Area (Acres)	Percent of Study Unit
1	Salt Creek North	299.3	6.1%
2	Salt Creek Central	148.1	1.9%
3	Salt Creek South	124.8	2.5%
4	Salt Creek Southeast	196.9	2.5%
5	Devon Avenue Tributary	80.7	4.0%
6	Spring Brook Creek	381.3	4.0%
7	Westwood Creek	198.6	5.2%
8	Sugar Creek	40.3	1.5%
9	Oak Brook Tributary	34.2	4.5%
10	Ginger Creek	173.3	5.0%
11	Bronswood Tributary	71.7	3.4%
12	Addison Creek North	79.7	2.6%
13	Addison Creek Central	81.2	1.1%
14	Addison Creek South	17.6	0.5%
	Totals	2,034.7	

Table 12. Wetlands by Lower Salt Creek subwatershed.



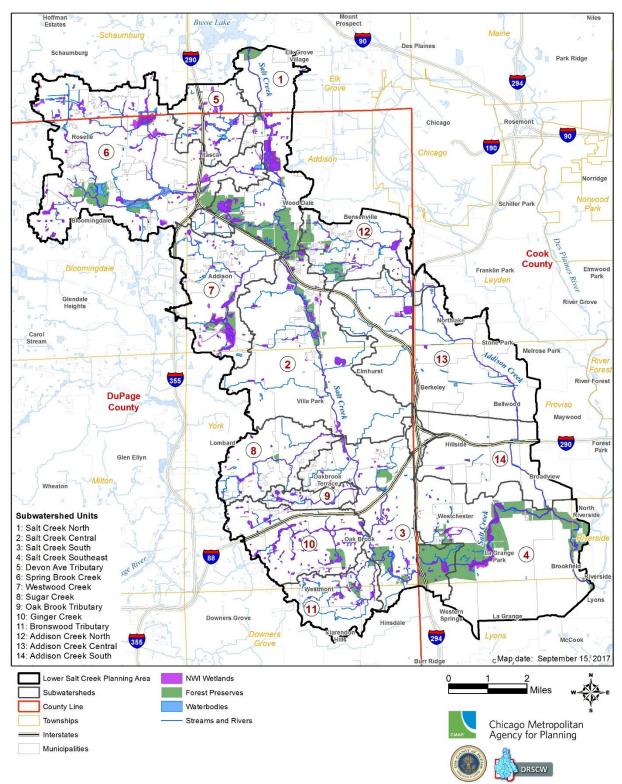


Figure 21. Wetlands in the Lower Salt Creek planning area.



3.3.8 Oak Communities

Prior to European settlement, oak-dominated communities (oak barrens, savanna, woodland, or forest) covered substantial portions of Cook and DuPage Counties.³⁰ Presettlement land cover from the 1830s indicates that 7,828.3 acres of the Lower Salt Creek planning area was covered in forest most likely made up of oak-dominated communities. By 1939, only 28 percent of Cook County's and 44 percent of DuPage County's land area was covered with oak ecosystems. Between 1939 and 2010, Cook County lost approximately 8,259 acres of oak ecosystems; DuPage County lost 12,842 acres. This is approximately a 46 and 54 percent decline, respectively, in oak ecosystem cover across the two counties.

A similar declining trend is present in the Lower Salt Creek watershed. As of 2010, oak ecosystems occupy approximately 2,188.3 acres (3.4 sq. miles) of the planning area (Table 13, Figure 22), over half of which resides within or along the edges of the forest preserves. In 1939, oak ecosystems covered approximately 4,982.5 acres (7.7 percent of the planning area). This is equivalent to a 56.1 percent reduction in oak ecosystem coverage. Of the oak ecosystems remaining in the planning area, approximately 56 percent are located within DuPage County, which is equivalent to 17.8 percent of DuPage's County's entire oak ecosystem coverage.

Year	A	rea	Percent of
Ieur	(acres)	(sq. miles)	Planning Area
1830s	7,828.3	12.2	12.1
1939	4,982.5	7.8	7.7
2010	2,188.3	3.4	3.4

Table 13. Oak communities in the Lower Salt Creek planning area, 1830s to 2010.³¹

On a subwatershed study unit basis, Salt Creek South has the greatest oak ecosystems coverage with 10.8 percent accounting for its total acreage (Table 14). Salt Creek Southeast and Addison Creek North also have adequate coverage at 8.7 percent and 7.3 percent, respectively.

Identification of remaining natural areas, including oak dominated communities, supports conservation efforts and should be used as a tool to preserve important natural landscapes and establish greenways. New conservation opportunities and best management projects aimed at restoring natural vegetation and biodiversity may be identified and implemented in order to

³¹ 1830s data reflects forested areas throughout Illinois in the early 1800s. Data was derived from: "Land Cover of Illinois in the Early 1800's," Illinois Natural History Survey (INHS), Prairie Research Institute, last accessed October 26, 2017, <u>http://wwx.inhs.illinois.edu/resources/gis/glo/</u>



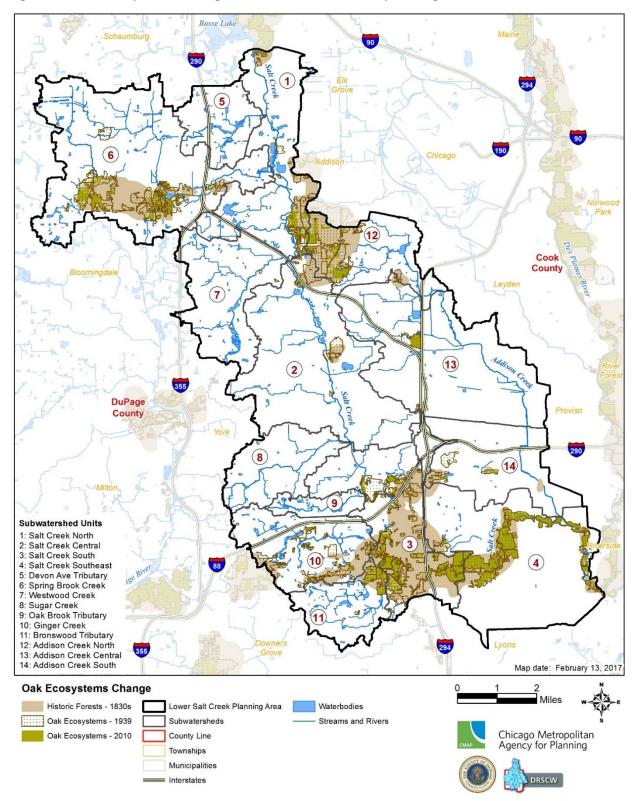
³⁰ Chicago Wilderness, 2015. *Oak ecosystems recovery plan: Sustaining oaks in the Chicago wilderness region*. <u>https://www.dnr.illinois.gov/conservation/IWAP/Documents/Chicago%20Wilderness%20Oak%20Ecosystem%20Rec</u>overy%20Plan.pdf (accessed October 26, 2016).

provide links between fragmented habitats as well as provide stormwater management benefits through retainment of pervious cover.

Study Unit #	Subwatershed Unit Name	Area of Oaks (Acres)	Percent of Study Unit
1	Salt Creek North	157.6	3.2%
2	Salt Creek Central	25.2	0.3%
3	Salt Creek South	542.5	10.8%
4	Salt Creek Southeast	697.9	8.7%
5	Devon Avenue Tributary	0.0	0.0%
6	Spring Brook Creek	330.7	3.5%
7	Westwood Creek	0.0	0.0%
8	Sugar Creek	0.0	0.0%
9	Oak Brook Tributary*	0.8	0.1%
10	Ginger Creek	38.2	1.1%
11	Bronswood Tributary	107.2	5.1%
12	Addison Creek North	222.5	7.3%
13	Addison Creek Central	50.2	0.7%
14	Addison Creek South	15.4	0.4%
	Total	2,188.3	

Table 14. Existing (2010) oak communities by Lower Salt Creek subwatershed.









3.4 Land Use and Land Cover

3.4.1 Current Land Use

Land use is classified using CMAP's 2013 Land Use Inventory Classification Scheme. The landuse scheme employs a new methodology and results in 57 categories of land use that are aggregated under five general categories: Urbanized, Agriculture, Open Space, Vacant or Under Construction, and Water. CMAP's land-use data is parcel based.

For purposes of this plan, land use within the planning area is organized among eleven categories (Figure 23, Table 15, and Table 16). Residential (38.01 percent) and transportation, communications, and utilities (23.87 percent) land uses are the most dominant within the planning area. Open space is the third most common type of land use (15.42 percent) followed by industrial and commercial land uses at 7.63 and 7.03 percent, respectively.³² Land use within each subwatershed study unit boundary was tabulated by the eleven categories as well (Table 16). Spring Brook Creek and Salt Creek Southeast are two study units with the most residential land uses (3,623 acres and 3,162 acres, respectively), while Addison Creek Central has the most industrial land uses (1,205 acres). Understanding the land use composition at this scale is useful for understanding and comparing pollutant loads generated from each subwatershed and targeting BMP strategies to reduce loads.

Land Use Category	Area (acres)	Area (sq. miles)	Percent of Planning Area
Residential	24,492.4	38.3	38.01
Commercial	4,527.3	7.1	7.03
Institutional	3,736.3	5.8	5.80
Industrial	4,919.1	7.7	7.63
Open Space	9,937.1	15.5	15.42
Agriculture	29.5	0.0	0.05
T/C/U	15,379.8	24.0	23.87
Vacant	1,366.2	2.1	2.12
Under Construction	14.5	0.0	0.02
Unclassifiable/other*	12.4	0.0	0.02
Water	18.3	0.0	0.03
Totals	64,432.9	100.7	100

Table 15. Land-use categories and extent within the Low	ver Salt Creek planning area.
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T/C/U = transportation, communications, and utilities;

*Unclassifiable/other includes right-of-ways and non-parcel areas.

³² Open Space and Vacant or Under Construction are two examples of land use that warrant explanation. Readers are encouraged to review a more detailed description of land-use categories at <u>http://www.cmap.illinois.gov/data/land-use/inventory</u>.



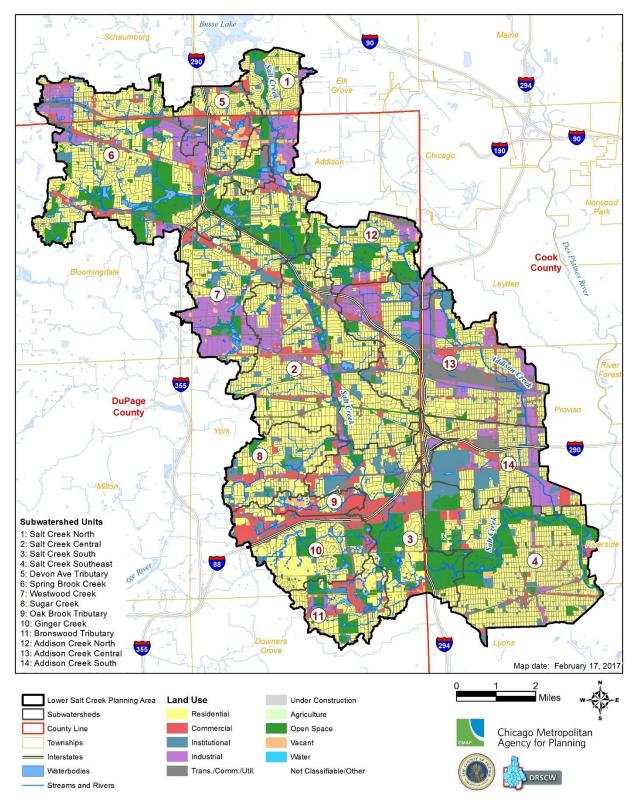


Figure 23. Land use in the Lower Salt Creek planning area.



Land Use Category	Salt Crk North	Salt Crk Central	Salt Crk South	Salt Crk SE	Devon Ave Trib.	Spring Brook Crk	Westwood Crk
Subwatershed/ Study Unit #	1	2	3	4	5	6	7
Residential	1,659	3,911	1,598	3,162	692	3,623	1,186
Commercial	183	404	625	317	256	400	223
Institutional	182	220	307	505	68	334	195
Industrial	380	480	31	114	168	903	793
Open Space	1,225	712	1,393	1,898	66	1,950	431
Agriculture	6						23
T/C/U	1,086	2,073	975	1,906	657	2,019	810
Vacant	188	108	114	85	112	210	137
Under Construction		1	4	0	0	4	1
Unclassifiable/ other	0	0		0	0	0	
Water	1	0		7		0	
Totals	4,911	7,911	5,046	7,995	2,020	9,443	3,798

Table 16. Land use (acres) by subwatershed within the Lower Salt Creek planning area.

Land Use Category	Sugar Crk	Oak Brook Trib.	Ginger Crk	Bronswood Trib.	Addison Crk North	Addison Crk Central	Addison Crk South
Subwatershed/ Study Unit #	8	9	10	11	12	13	14
Residential	1,357	221	1,570	862	1,072	2,458	1,121
Commercial	214	291	585	271	67	454	238
Institutional	279	15	111	100	148	540	730
Industrial	26			58	257	1,205	503
Open Space	204	21	462	396	810	299	70
Agriculture					1		
T/C/U	472	116	660	319	616	2,675	997
Vacant	56	98	44	82	59	55	19
Under Construction	0		1	0		1	1
Unclassifiable /other		0	1		1	7	3
Water		0			0	4	6
Totals	2,608	762	3,434	2,088	3,031	7,697	3,688



3.4.2 Impervious Surface

Impervious surface, that part of the landscape that is paved or covered with nonporous material (e.g., concrete, asphalt, roofs, etc.) prevents infiltration of rain and snowmelt and thus generates runoff and nonpoint source pollution. Impervious surface changes local hydrology which often leads to stream channel downcutting and widening. The resultant erosion of the streambank and streambed further aggravates water quality and can negatively impact land resources and infrastructure. Given the impacts of impervious surface on local hydrology, water quality, and other resources, this man-made feature of the landscape warrants special attention in any effort to protect or restore water quality.

The National Land Cover Database 2011 (NLCD 2011) is applied for the analyses featured in this plan.³³ The NLCD 2011 is the most recent Landsat-based, 30-meter resolution land cover database for the Nation. One product derived from these data is the NLCD 2011 Percent Developed Imperviousness. Each data point or pixel represents a remotely-sensed image of the Earth's surface—at a 30-meter resolution—that has an assigned value of imperviousness, ranging from 0 to 100 percent. Figure 25 displays the pattern and extent of impervious surface within the Lower Salt Creek planning area.³⁴ Data analysis reveals that nearly 95 percent of the planning area is covered with varying degrees of imperviousness, 43.7 percent of which is completely impervious.

For purposes of this plan, impervious surface is best understood in the context of its impact on stream quality. The percent of impervious cover is a widely used metric for estimating stream health at the watershed scale.³⁵ Figure 24 illustrates the relationship between stream health and the degree of impervious surface.

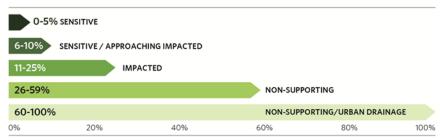


Figure 24. Stream health categories relative to extent of impervious surface.

Source: Center for Watershed Protection (2003)

³⁵ T.R. Scheuler, "Is Impervious Cover Still Important? Review of Recent Research," *Journal of Hydrologic Engineering* 14, no. 4 (2009), 309-315.



³³ "National Land Cover Database," Multi-Resolution Land Characteristics Consortium (MRLC), last accessed October 17, 2017, <u>http://www.mrlc.gov/</u>

³⁴ Pixels shaded black feature 0 percent impervious surface. Beginning with shades of gray – from light to dark – and then switching to shades of red – from pink to purple – pixels represent impervious surface from 1-100 percent.

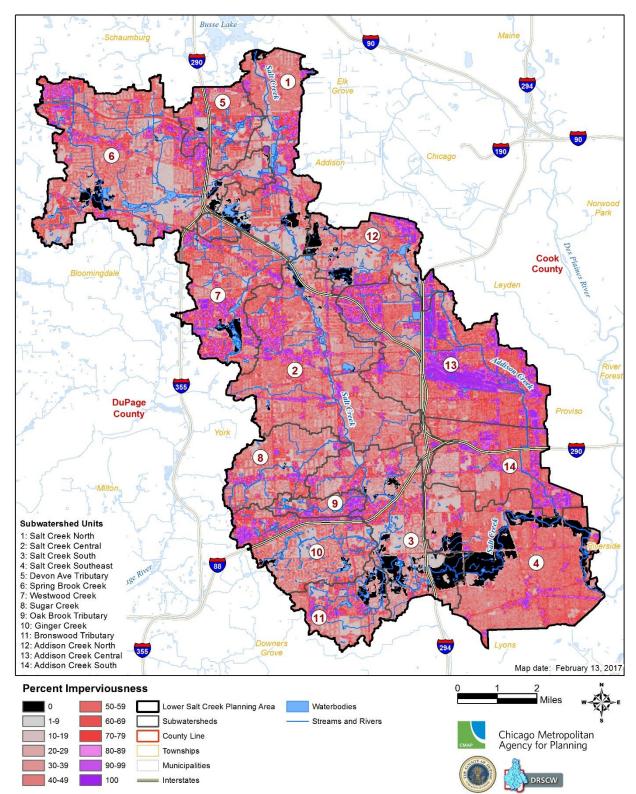


Figure 25. Impervious surface (0-100%) in the Lower Salt Creek planning area.



The relationship between impervious surface and stream quality is best examined at smaller units of geography, such as the subwatershed scale. More localized land areas of less spatial extent typically have more direct impacts on the overall health of nearby lakes and streams. Table 17 shows the relationship between the impervious surface extent for the fourteen subwatershed units within the Lower Salt Creek watershed and the resultant stream health category. The stream health for thirteen of the subwatershed units fall within the nonsupporting category, and one (Addison Creek Central) falls in the highest category of nonsupporting / urban drainage with 61 percent of the subwatershed being completely impervious. Figure 26 illustrates the pattern of stream health categories across the planning area.

Study Unit #	Subwatershed Unit Name	Area (ac)	Impervious Surface Area (ac)	Percent Impervious Surface	Stream Health Category
1	Salt Crk North	4,911	1,837	37.4	Non-supporting
2	Salt Crk Central	7,911	3,464	43.8	Non-supporting
3	Salt Crk South	5,046	1,695	33.6	Non-supporting
4	Salt Crk Southeast	7,995	3,129	39.1	Non-supporting
5	Devon Ave. Trib.	2,020	970	48.0	Non-supporting
6	Spring Brook Crk	9,443	3,707	39.3	Non-supporting
7	Westwood Crk	3,798	1,918	50.5	Non-supporting
8	Sugar Crk	2,608	1,033	39.6	Non-supporting
9	Oak Brook Trib.	762	403	52.9	Non-supporting
10	Ginger Crk	3,434	1,417	41.3	Non-supporting
11	Bronswood Trib.	2,088	733	35.1	Non-supporting
12	Addison Crk North	3,031	1,144	37.7	Non-supporting
13	Addison Crk Central	7,697	4,692	61.0	Non-supporting / Urban Drainage
14	Addison Crk South	3,688	1,997	54.2	Non-supporting
	Totals	64,433.0	28,140	43.7	Non-supporting

Table 17. Impervious surface extent and stream health by Lower Salt Creek subwatershed.



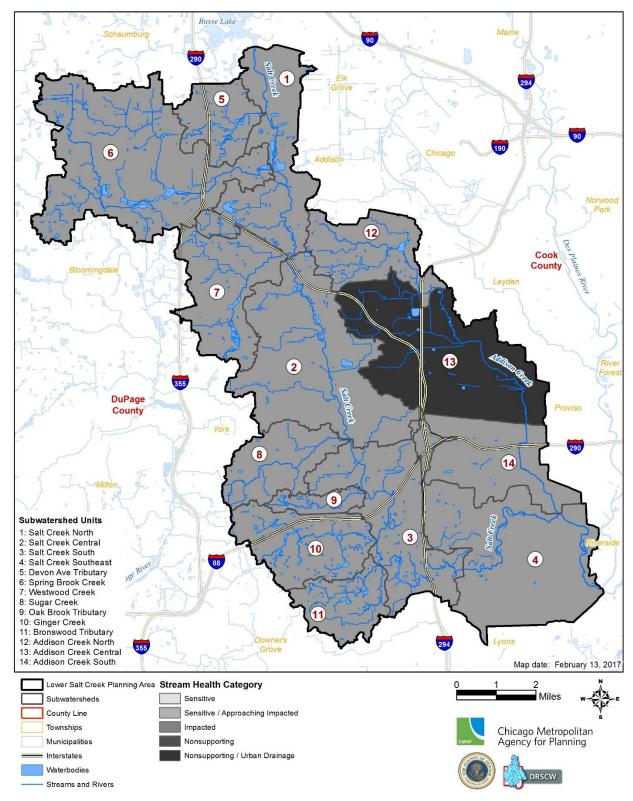


Figure 26. Stream health as a function of impervious surface extent by Lower Salt Creek subwatershed.



3.4.3 Open Space Reserve

An open space reserve is an area of land and/or water that is protected or conserved such that development will not occur on that location at any time during the foreseeable future. Within the Lower Salt Creek watershed, the reserve encompasses 9,937 acres of dedicated open space (Table 18). As shown in Figure 27, more than half of the reserve (approximately 4,817 acres) is owned and managed by the Forest Preserve District of DuPage County (FPDDC) and Forest Preserves of Cook County (FPCC). Public parks, greenways and trails, private land protected by conservation easements, as well as golf courses and natural lands owned or managed by the Illinois Department of Natural Resources (IDNR) are also included within the reserve. Golf courses were included in the reserve because many are located within the forest preserves.

The open space reserve holdings were compiled from a variety of sources, including the Forest Preserve District of DuPage County, Forest Preserves of Cook County, the Illinois Department of Natural Resources, the National Conservation Easement Database, and CMAP land use inventories. Of the 14 subwatershed units that make up the Lower Salt Creek planning area, Salt Creek North, Salt Creek South, and Addison Creek North have the most open space relative to the size of the study units (see

Table 19). On the other hand, Addison Creek South and Oak Brook Tributary have the least amount of open space (between 1-2% coverage) relative to the size of the study units. Subwatershed units that only contain a small amount of open space reserve reveal opportunity areas for the creation of new open space as well as habitat improvements.

Open Space Reserve		Area (acres)	Percent of Planning Area
IDNR natural areas / nature preserves		353	0.5
Parks, greenways, and trails		2,213	3.4
Forest preserves		4,817	7.4
Golf courses		3,438	5.3
Conservation easements		16	0.02
	Totals	9,937	14.5

Table 18. Open space reserve holdings in the Lower Salt Creek planning area.³⁶

³⁶ The acreage breakdown of the open space reserve by land holding type exceeds the total acreage of the open space reserves because golf courses and IDNR natural area/nature preserves overlap with Forest Preserve property.



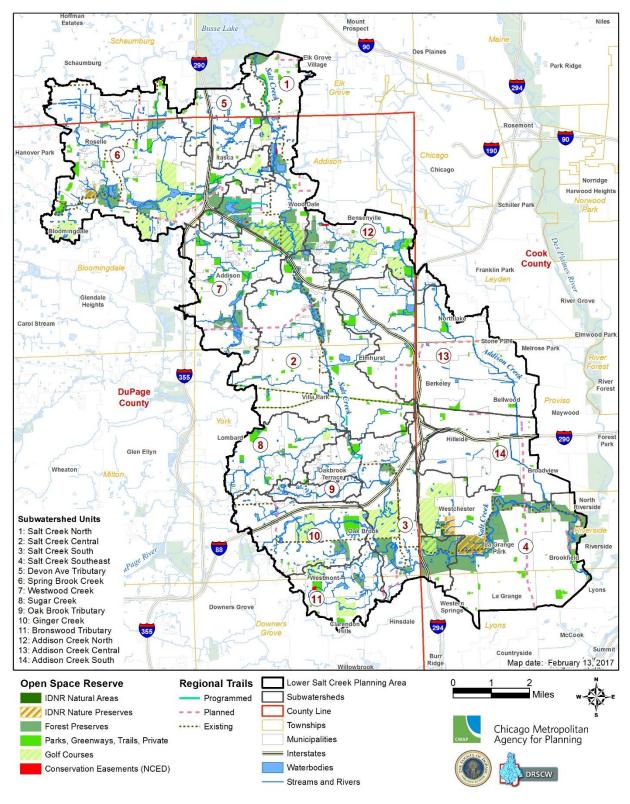


Figure 27. Open space in the Lower Salt Creek planning area.



Chicago Metropolitan Agency for Planning

Lower Salt Creek Watershed-Based Plan

Study Unit #	Subwatershed Unit Name	Open Space (Acres)	Study Unit (Acres)	Percent of Study Unit
1	Salt Creek North	1,346.6	4,910.6	27.4%
2	Salt Creek Central	675.9	7,911.0	8.5%
3	Salt Creek South	1,337.4	5,045.9	26.5%
4	Salt Creek Southeast	1,978.9	7,995.0	24.8%
5	Devon Avenue Tributary	56.8	2,020.5	2.8%
6	Spring Brook Creek	1,902.9	9,443.5	20.2%
7	Westwood Creek	431.1	3,798.4	11.3%
8	Sugar Creek	203.7	2,608.1	7.8%
9	Oak Brook Tributary	14.1	762.4	1.8%
10	Ginger Creek	461.9	3,433.7	13.5%
11	Bronswood Tributary	362.5	2,087.6	17.4%
12	Addison Creek North	805.5	3,031.2	26.6%
13	Addison Creek Central	284.5	7,697.4	3.7%
14	Addison Creek South	70.9	3,687.6	1.9%
	Totals	9,932.5	64,432.9	

Table 19. Open space reserve by Lower Salt Creek subwatershed.

3.4.4 Presettlement Land Cover

For a qualitative sense of historical land use change, **Error! Reference source not found.** shows the presettlement land cover in and around the Lower Salt Creek planning area as surveyed during the initial stages of Euro-American settlement in the early 1800s³⁷. The results from the initial survey have been supplemented by the Morton Arboretum to include the most probable ecosystem types for areas that had already been developed when the survey was conducted. Prior to development, prairieland dominated the planning area. Pockets of forest and wetlands (categorized as bottomland, slough, swamp, or other wetland types)³⁸ were also present. This historic land cover can be informative for current land use planning and ecological restoration project purposes.

³⁸ Swamps are wetlands dominated by trees or shrubs. A slough is another term for a swamp or shallow lake system. Bottomland wetlands are lowlands along streams and rivers, usually on alluvial floodplains that are periodically flooded (from Mitsch, W.J. and J.G. Gosselink. 1986. *Wetlands*. Van Nostrand Reinhold Co. Ltd., New York, NY).



³⁷ "Land Cover of Illinois in the Early 1800's," Illinois Natural History Survey (INHS), Prairie Research Institute, last accessed October 26, 2017, <u>http://wwx.inhs.illinois.edu/resources/gis/glo/</u>

3.5 Water Resource Conditions

3.5.1 Watershed Drainage System

Water in the Lower Salt Creek watershed planning area generally flows from north-northwest to south-southeast. For the extent of this plan, Lower Salt Creek originates at the outlet of Busse Lake approximately 1.5 miles north of the DuPage-Cook County border and enters the Des Plaines River in western Cook County in Lyons. As noted previously, the Lower Salt Creek planning area is comprised of three HUC 12 watersheds: Middle Salt Creek, Lower Salt Creek, and Addison Creek (Figure 4). The 101 square mile planning area was further refined based on local watershed boundary datasets and subdivided into 14 subbasins or "study units" (Figure 5, Table 1). Numerous ponds, wetlands, stormwater detention basins, and flood control facilities also serve as storage features and conduits for watershed drainage. See section 3.5.2.2 for further description of the stream network.

3.5.2 Physical Stream Conditions³⁹

3.5.2.1 Introduction and Methods

The DuPage River Salt Creek Workgroup (DRSCW) conducted a stream inventory for the Lower Salt Creek watershed in the summer of 2016 and winter of 2017. For the purposes of the stream inventory, the Lower Salt Creek stream network was divided into reaches, which are smaller, geographically defined segments of the stream. Features such as dams, bridges, road and railroad crossings, and changes in land use were used to define the upstream and downstream limits of each reach. The Lower Salt Creek stream network was divided into 441 reaches (71.81 miles). The average length of assessed reaches in the Lower Salt Creek inventory is 929.4 feet.

The following types of data were collected during the inventory:

- Channelization
- Bank Erosion
- Riparian Width
- Debris Jams

The stream inventory data was assembled from a variety of means and methods. Data sources include the 2017 Salt Creek Stream Inventory, the 2016 Salt Creek Bioassessment, the 2014 Sugar Creek watershed stream assessment, and the 2010 Salt Creek Stream Assessment for TMDL watersheds. Project stakeholders also provided additional stream inventory data.

³⁹ This section was written by Deanna Doohaluk, DRSCW, provided via email correspondence to CMAP. The accompanying maps were made by CMAP from data provided by DRSCW.



Field data collected by the DRSCW as part of the 2016 Salt Creek Bioassessment was used as the baseline for the survey. The 2016 data included physical habitat quality that was evaluated using the Qualitative Habitat Evaluation Index (QHEI) at 21 sites along the Salt Creek main stem (study units #1-4), 6 sites in the Springbrook Creek subwatershed (study unit #6), 1 site on Westwood Creek (study unit #7), 6 sites in the Addison Creek South subwatershed (study unit #14), 1 site on Sugar Creek (study unit #8), 2 sites on the Oak Brook Tributary (study unit #9), and 2 sites on Ginger Creek (study unit #10). At each site, the data collected represents approximately 600-foot sections or "reaches" at wadable sites and 1600-foot reaches at non-wadable sites. Data obtained from the QHEI utilized in the physical stream condition survey includes channelization, bank erosion, and riparian width. See Section 3.5.5.2 for additional information on the QHEI data collected in the Lower Salt Creek watershed.

For reaches located outside of the QHEI assessment area, the DRSCW conducted additional field observations during winter 2017 to collect channelization, bank erosion, riparian width, and debris jam data along the main stems of Salt Creek and Addison Creek. In order to standardize the inventory, the 2017 field work utilized QHEI methods and evaluation criteria for all assessed parameters. This field work, along with the analysis of high-resolution aerial imagery, was used to complete the stream inventory for the main stems of Salt Creek and Addison Creek. Information on debris jams and bank erosion from the 2010 Salt Creek Stream Assessment for TMDL watersheds was also integrated into the inventory.

Additionally, in 2014, DuPage County conducted a stream assessment of Sugar Creek. Although the Sugar Creek stream assessment utilized a different assessment methodology and reporting form that the work conducted by the DRSCW, the information obtained during the assessment was documented in such a way that the information could be interrupted using the metrics utilized by the DRSCW. For the purposes of the stream inventory, the data collected in Sugar Creek is presented using the same evaluation metrics as the data collected by the DRSCW.

Additional data on stream conditions submitted by project stakeholders were also integrated into this assessment. The Village of Northlake provided data prepared by Christopher B. Burke Engineering, Ltd for Addison Creek from Palmer Avenue to the railroad tracks. The City of Elmhurst also submitted data prepared by Engineering Resource Associates for the North Elmhurst Drainage Ditch, which is a tributary to Addison Creek. Similar to the data collected in Sugar Creek, information obtained from stakeholders is presented using the same evaluation metrics as the data collected by the DRSCW.

3.5.2.2 Stream Network Description

The stream inventory was focused on the main stem of Salt Creek and the main stem of Addison Creek from its confluence with Salt Creek and north to Roosevelt Road. Additionally, those portions of Salt Creek tributaries where existing data was available were included in the stream inventory. In summary, of the 441 reaches in the watershed, 204 reaches (37.35 miles) were assessed in the inventory (Table 20).



	Salt Creek	Addison Creek	Salt & Addison Creek Tributaries	Totals
Total stream miles	30.73	12.06	31.02	71.81
Stream miles assessed	30.73	3.09	8.67	42.49
Percent assessed	100%	25.8%	27.9%	59.2%

Table 20. Total versus assessed stream miles in the Lower Salt Creek planning area.

Salt Creek

The main stem Salt Creek watershed has been divided into four subwatersheds: Salt Creek North, Salt Creek Central, Salt Creek South, and Salt Creek Southeast. The flow paths of these Salt Creek subwatersheds are described below.

Salt Creek North (Subwatershed/Study Unit #1) – Busse Lake empties over its dam into Salt Creek. From the dam, Salt Creek flows in a southerly direction through the southern section of Busse Woods Forest Preserve until Arlington Heights Road. From Arlington Heights Road, the creek continues to flow south past Elk Grove High School and through a residential area to Devon Avenue. Many recreational areas and parks including Lions Park, Jaycee Park, Olmstead Park, Morton Park, and Burbank Park border Salt Creek through this reach. South of Devon Avenue, Salt Creek continues to flow in a southerly direction under IL-390/Thorndale Road to Irving Park Road through a commercial/industrial area to the west and open space comprised of the Salt Creek Golf Course and Salt Creek Marsh Forest Preserve on the east. South of Irving Park Road, the creek then flows through a residential area and the Salt Creek Forest Preserve before flowing under Elizabeth Drive and though the Oak Meadows Golf Course. From the Oak Meadows Golf Course, Salt Creek flows under I-290.

Salt Creek Central (Subwatershed/Study Unit #2) – From the I-290 bridge, Salt Creek runs parallel to I-290 in a southeasterly direction through a mixed commercial/industrial and residential area before entering the Cricket Creek Forest Preserve at Fullerton Avenue. The creek then flows under US 64 and through a mixed commercial/industrial and residential area before entering the Salt Creek Greenway Forest Preserve south of the railroad tracks. From the Salt Creek Greenway Preserve, Salt Creek continues to flow towards the southeast, under Kingery Highway (IL-83) and through a mixed commercial/industrial and residential area into Eldridge Park in the southwest part of Elmhurst.

Salt Creek South and **Salt Creek Southeast** (Subwatershed/Study Unit #3 and #4) – From Eldridge Park, Salt Creek flows under Butterfield Road, Roosevelt Road, I-88, and 22nd Avenue before entering the Oakbrook Golf Course and Butler National County Club. South of the golf courses, the creek flows under 31st Street and then turns to the east flowing through the Fullersburg Woods Forest Preserve and then a residential area before flowing under I-294. From I-294, Salt Creek continues to flow in an easterly direction through Bemis Woods Forest Preserve and Salt Creek then flows in a



north/northeasterly direction through the Possum Hollow Woods Forest Preserve before turning to the east at US 12/45. After flowing under US 12/45, Salt Creek flows in a northeasterly direction through Brezina Woods Forest Preserve and Twenty-Sixth Street Woods Forest Preserve before turning to the south near 31st Street. From 31st Street, the creek flows in a southerly direction through the Brookfield Zoo and a mixed residential and commercial area before meeting its confluence with the Des Plaines River in the Plank Road Meadows Forest Preserve just west of 1st Avenue in Lyons.

Addison Creek

The Addison Creek Watershed has been divided into three subwatersheds: Addison Creek North, Addison Creek Central, and Addison Creek South. The flow paths of the three Addison Creek subwatersheds are described below.

Addison Creek North and Addison Creek Central (Subwatershed/Study Unit #12 and #13) -The Addison Creek North and Addison Creek Central subwatersheds were excluded from the inventory due to a planned Metropolitan Water Reclamation District of Greater Chicago (MWRD) project that will significantly modify the stream channel and riparian area of Addison Creek upstream of Roosevelt Road (IL-38).

Addison Creek South (Subwatershed/Study Unit #14) - From Roosevelt Road in Westchester, Addison Creek flows in a southeasterly direction through an industrial area parallel to the railroad tracks until Gardner Road. From Gardner Road, the creek continues to run towards the southeast though an industrial and commercial area through Broadview and under Cermack Road. South of Cermack Road, Addison Creek flows through the Twenty-Sixth Street Woods Forest Preserve before meeting its confluence with Salt Creek just west of 17th Avenue in North Riverside.

Salt Creek Tributaries

Devon Avenue Tributary (Subwatershed/Study Unit #5) – The Devon Avenue Tributary subwatershed is situated in the north central portion of the Lower Salt Creek Watershed within Elk Grove Village and Itasca. The headwaters are located near the intersection of I-290 and IL-390. The waterway is comprised of a series of detention basins, storms sewer pipes, and drainage swales draining a mixed commercial and industrial area. The Devon Avenue Tributary confluence with Salt Creek is located immediately south of the Devon Avenue bridge (the Cook-DuPage County border) in unincorporated DuPage County.

Spring Brook Creek (Subwatershed/Study Unit #6) – The Spring Brook Creek subwatershed is located in the northwest portion of the Lower Salt Creek watershed and includes portions of the Villages of Schaumburg, Roselle, Bloomingdale, and Itasca and unincorporated Cook and DuPage Counties. Spring Brook Creek generally flows in an easterly direction through a predominately residential area. Both the Medinah Country Club and Itasca County Club are located along Spring Brook Creek. Spring Brook Creek's confluence with Salt Creek is situated in the Salt Creek Marsh Forest Preserve east of North Prospect Avenue in Itasca.



Spring Brook Creek has one major tributary, Meacham Creek. The headwaters of Meacham Creek are located near the intersection of IL-390 and Meacham Road/Medinah Road. Meacham Creek flows in a southerly direction to its confluence with Spring Brook Creek within the Medinah County Club.

Westwood Creek (Subwatershed/Study Unit #7) – The Westwood Creek subwatershed is located in the northwest central portion of the Lower Salt Creek watershed in the Village of Addison and unincorporated DuPage County. The headwaters of Westwood Creek can be found near the intersection of Woodland Avenue and 7th Street in in Addison. Westwood Creek generally flows in an easterly direction through a predominately residential area. Westwood Creek's confluence with Salt Creek is located north of the Addison North POTW on the east of Addison Road.

Sugar Creek (Subwatershed/Study Unit #8) – The Sugar Creek subwatershed is located in the southwest central portion of the Lower Salt Creek watershed in the Villages of Lombard and Villa Park and unincorporated DuPage County. The headwaters of Sugar Creek are located near IL-38 and Edgewood Avenue in the Village of Lombard. From its headwaters, Sugar Creek generally flows in an east- northeast direction through a mixed commercial/industrial and residential area. Sugar Creek's confluence with Salt Creek is located at Maple Trail Woods Forest Preserve near Sunnyside Avenue.

Oak Brook Tributary (Subwatershed/Study Unit #9) – The Oak Brook Tributary subwatershed is located south of the Sugar Creek subwatershed in the Villages of Lombard and Oak Brook and City of Oak Brook Terrace. The headwaters of the Oak Brook Tributary are situated near the intersection of Royce Boulevard and Renaissance Boulevard in the Oak Brook Terrace. The Oak Brook Tributary generally flows in an easterly direction through a predominately commercial area. The Oak Brook Tributary's confluence with Salt Creek is located near the northeast corner of the Oak Brook Center shopping mall.

Ginger Creek (Subwatershed/Study Unit #10) - The Ginger Creek subwatershed is located south of the Oak Brook Tributary subwatershed in the Village Oak Brook. The headwaters of Ginger Creek are located near the intersection of 31st Street and Midwest Club Parkway in the Village of Oak Brook. From its headwaters, Ginger Creek generally flows in an easterly direction through a predominately residential area. The Butterfield Country Club is located within the subwatershed. Ginger Creek's confluence with Salt Creek is located just east of the Ronald McDonald House Charities building on Ronald Lane.

Bronswood Tributary (Subwatershed/Study Unit #11) – The Bronswood Tributary subwatershed is located in the southwest portion of the Lower Salt Creek watershed in the Villages of Oakbrook, Hinsdale, Westmont, and Clarendon Hills. Two creeks make up the Bronswood Tributary stream system. The headwaters of the northern-most creek are located within the Oak Brook Hills Resort and the headwaters of the southern creek are located near the intersection of Richmond Avenue and Traube Avenue in the Village of Westmont. From its headwaters, the Bronswood Tributaries generally flows in a northeasterly direction through a



mixed commercial and residential area. The Oak Brooks Hills Resort, the Hinsdale Golf Club, and Bronswood Cemetery are located within the subwatershed. The Bronswood Tributary's confluence with Salt Creek is within the Fullersburg Wood Forest Preserve upstream of the Fullersburg Woods (Graue Mill) dam.

Addison Creek Tributaries

Elmhurst Drainage Ditch (within Subwatershed/Study Unit #13) – The Elmhurst Drainage Ditch is located in the north-central portion of the Addison Creek Central subwatershed in the City of Elmhurst. The Elmhurst Drainage Ditch begins near I-290 and flows eastwardly to its confluence with Addison Creek just west of I-294. York Road divides the Elmhurst Drainage Ditch's catchment area, with mostly industrial and commercial developments to the west and residential land use to the east.

3.5.2.3 Channelization

Channelization is the practice of dredging and straightening stream channels to increase flow rates and carrying capacities. Traditionally, channelization was done to move as much water as possible away from an area in a short period of time and prevent flooding. In a channelized stream, many of the natural stream features have been destroyed through the elimination of the meandering bends and the over-widening of the channel bottom.

Numerous problems result from channelization of streams and ditches. Channelization is detrimental for the health of streams and rivers through the elimination of suitable instream habitat for fish and wildlife by limiting the number of natural instream features such as pool-riffle sequences in the channel. Additionally, channelization has the effect of reducing the overall length of the stream and increasing the gradient of the channel. In both streams and constructed channels, channelization increased the speed at which runoff flows through the stream system. Because it is the nature of concentrated, flowing water to create meandering channels, channelized streams may be susceptible to bank instability and erosion.

As part of the physical stream condition survey prepared as part of the watershed-based planning process, channelization in the Lower Salt Creek watershed was documented. The degree of channelization was assessed using the following classifications:

- **Natural** refers to no obvious direct realignment or alteration of the channel and a natural appearance.
- **Recovered** refers to streams that have been channelized in the past, but which have recovered most of their natural channel characteristics.
- **Recovering** refers to channelized streams which are still in the process of regaining their former, natural condition; however, these habitats are still degraded.
- **No Recovery** refers to streams that were recently channelized or those that show no significant recovery of habitats (e.g., drainage ditches, concrete, grass lined or rock riprap banks, etc.).



• **Impoundment** refers to the presences of impoundments and not a free flowing channel.

As expected with urban stream corridors, 100% of the stream miles assessed were historically channelized. Of the assessed streams, less than 1% have recovered from the channelization where natural channel characteristics were observed. The majority of the assessed stream miles in the Lower Salt Creek watershed (84%) were significantly impacted by channelization and showed limited signs of habitat recovery. Table 21 provides a summary of and Figure 28 illustrates the degree of channelization of the assessed reaches in the Lower Salt Creek watershed.

Degree of Channeli- zation	Salt Creek			Addison Creek			Salt and Addison Creek Tributaries			Totals		
	# of Reaches	Miles	% of Miles	# of Reaches	Miles	% of Miles	# of Reaches	Miles	% of Miles	# of Reaches	Miles	% of Miles
Natural	0	0.0	0.0%	0	0.0	0.0%	0	0.0	0.0%	0	0.0	0.0%
Recovered	3	0.3	1.0%	0	0.0	0.0%	0	0.0	0.0%	3	0.3	0.7%
Recovering	131	28.1	91.5%	6	1.7	54.7%	21	2.7	43.7%	158	32.5	81.2%
No	1	0.3	1.0%	6	1.4	45.3%	21	3.1	49.6%	28	4.8	12.0%
Recovery												
Impound- ments	13	2.0	6.6%	0	0.0	0.0%	8	0.4	6.7%	21	2.4	6.1%

Table 21. Degree of channelization for assessed stream reaches in the Lower Salt Creek planning area.



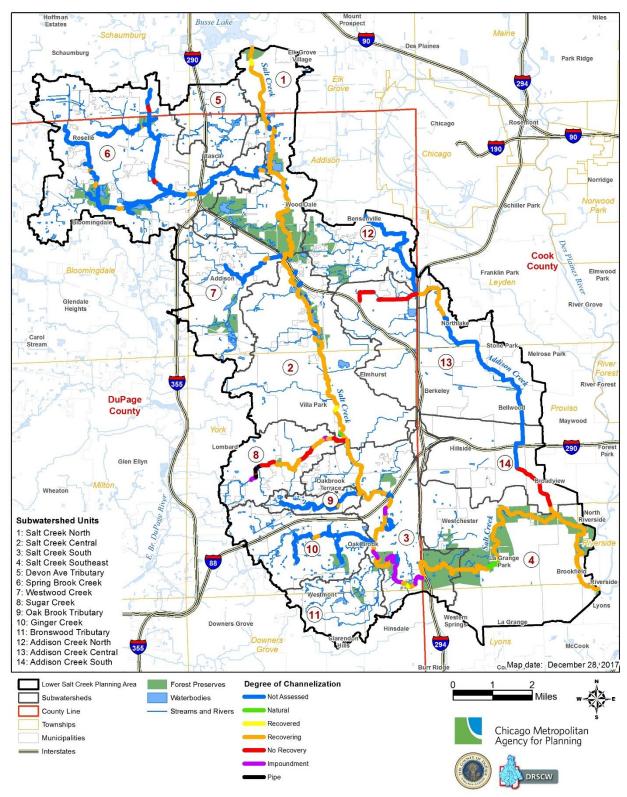


Figure 28. Degree of channelization of assessed stream reaches in the Lower Salt Creek planning area.



3.5.2.4 Streambank Erosion

Streambank erosion is a function of the amount of water flowing along the bank, steepness of the bank, and vegetative cover or armoring on the bank. Streambank erosion is a natural process and contributes to the sinuous, meandering form often associated with natural stream channels. In relatively natural systems, there is typically an overall balance between the amount of material eroded from one streambank and the amount of sediment deposited on another. However, in watersheds with significant development, streambank erosion rates are increased by changes in watershed hydrology, leading to several problems. Erosion can cause physical water quality problems such as increased or excessive turbidity in the water. Erosion can also lead to sedimentation, which is the deposition of sediment within the stream channel. Sedimentation reduces the volume that can be conveyed and covers existing streambed materials such as gravel, which are important habitat for macroinvertebrates and fish. Additionally, erosion can lead to water quality problems because nutrients, phosphorus in particular, are often bound to sediment particles and introduced to the aquatic environment by erosion. Excessive erosion can also be problematic for property owners and land managers because it can lead to downcutting and/or widening of the stream channel, thus leading to loss of land, property, or structures.

As part of the physical stream condition survey prepared as part of the watershed-based planning process, streambank erosion in the Lower Salt Creek watershed was documented. The degree of erosion was assessed using the following classifications:

- **None/Little:** streambanks are stable, but slightly changed along the transect line; less than 25% of streambank is receiving any stress, broken down, or eroding.
- **Moderate:** streambanks are receiving moderate alteration along transect line; at least 50% of streambank is in natural stable condition; not more than 50% is broken down or eroding.
- **Heavy:** streambanks have received major alterations along transect lines; less than 50% of streambank is in stable condition; over 50% of streambank is broken down or eroding.
- **Armored:** streambanks have been treated with a-jacks, riprap, sheet piling, or other hard armoring.

Similar to other urban stream corridors, streambank erosion is prevalent throughput the Lower Salt Creek watershed. Of the assessed streams, 64% were found to have moderate erosion with 23% with heavy erosion. Additionally, 8% of the streams have been armored with a structural erosion control measure such as a-jacks, riprap, sheet piling, or concrete. Table 22 provides a summary of and Figure 29 illustrates the degree of streambank erosion of the assessed reaches in the Lower Salt Creek watershed. In addition to field data collected in summer 2016 and winter 2017, which assessed the general condition of the streambanks, the 2010 Salt Creek Stream Assessment for TMDL watersheds identified specific locations of significant bank failure and areas of heavy erosion, also denoted on Figure 29.



Degree of Streambank Erosion	Salt Creek			Addison Creek			Salt and Addison Creek Tributaries			Totals		
	# of Reaches	Miles	% of Miles	# of Reaches	Miles	% of Miles	# of Reaches	Miles	% of Miles	# of Reaches	Miles	% of Miles
None/Little	3	1.3	4.4%	0	0	0.0%	4	0.5	8.1%	7	1.8	4.5%
Moderate	100	19.5	63.3%	3	0.5	16.7%	36	4.1	66.7%	139	24.1	60.5%
Heavy	33	7.2	23.4%	4	2.2	73.3%	6	1.0	16.8%	43	10.4	26.2%
Armored	12	2.7	8.9%	2	0.3	10.0%	4	0.5	8.4%	18	3.5	8.8%

Table 22. Degree of streambank erosion for assessed stream reaches in the Lower Salt Creek planning area.



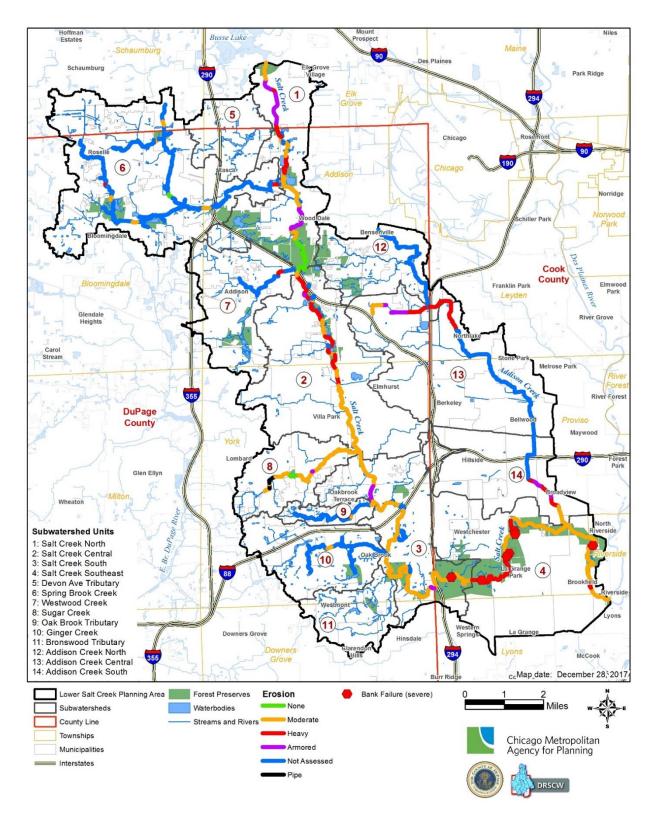


Figure 29. Degree of streambank erosion and severe erosion locations along assessed reaches in the Lower Salt Creek planning area.



3.5.2.5 Riparian Buffers

Riparian buffers are the vegetated areas near a stream. Riparian buffers are comprised of grasses, grass-like forbs, shrubs, trees, or other vegetation growing along streams. Vegetated riparian buffers are important to stream health because they make streambanks more resistant to erosion, act as filters for runoff and pollutants, provide shade to the stream, offer habitat for wildlife, and can be important links in a watershed's green infrastructure network. Typically, the wider the buffer, the better the pollutant removal and habitat values it provides.⁴⁰

The width and quality of vegetated riparian buffers of the Lower Salt Creek watershed were visually assessed during the inventory and validated with high-resolution aerial photography. For the purposes of the watershed-based plan, the riparian buffer width of the left bank and right bank (looking downstream) for each assessed reach were averaged assessed using the following classifications:

- None: 0 to 5 feet
- Narrow: 5 to 30 feet
- Moderate: 30 to 150 feet
- Wide: greater than 150 feet

Unlike what is typically expected from urban stream systems, the majority of the assessed streams were found to have a wide (greater than 150 feet) buffer. The wide buffer is directly associated with the Forest Preserves of Cook County (FPCC) and Forest Preserve District of DuPage County (FPDDC) acquisition of numerous parcels along the main stem and tributaries of Salt Creek for the Salt Creek Greenway Trail system. Table 23 provides a summary of and Figure 30 illustrates the average riparian buffer width of the assessed reaches in the Lower Salt Creek watershed.

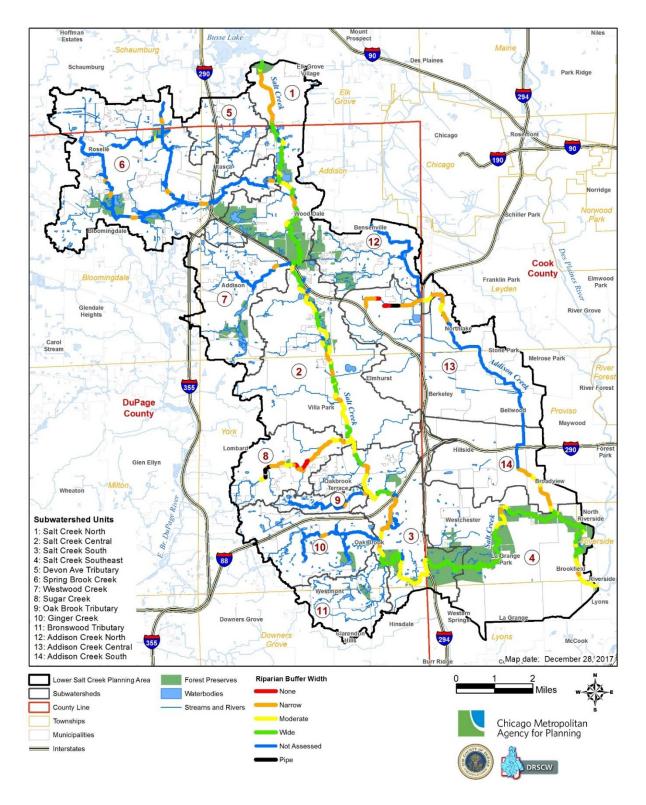
Table 23. Average riparian buffer width along assessed stream reaches in the Lower Salt Creek
planning area.

Avg.	Salt Creek			Addison Creek			Salt Creek and Addison Creek Tributaries			Totals		
Width of Riparian Buffer	# of Reaches	Miles	% of Miles	# of Reaches	Miles	% of Miles	# of Reaches	Miles	% of Miles	# of Reaches	Miles	% of Miles
None	0	0.0	0.0%	0	0.0	0.0%	6	1.0	16.1%	6	1.0	2.5%
Narrow	34	4.7	15.3%	6	1.8	58.1%	34	4.1	66.1%	74	10.6	26.5%
Moderate	57	9.2	30.0%	5	1.1	35.5%	10	1.1	17.9%	72	11.4	28.5%
Wide	57	16.8	54.7%	1	0.2	6.5%	0	0.0	0.0%	58	17.0	42.5%

⁴⁰ SEWRPC, 2010. *Managing the water's edge: Making natural connections*. Waukesha, WI. Accessed Jan. 30, 2018. <u>http://www.sewrpc.org/SEWRPCFiles/Publications/ppr/rbmg-001-managing-the-waters-edge.pdf</u>



Figure 30. Average riparian buffer width along assessed stream reaches in the Lower Salt Creek planning area.





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3.5.2.6 Debris Jams

Most streams transport some amount of debris such as tree limbs, brush, and leaves. Because debris transport is a naturally occurring stream process, some debris can provide habitat and contribute to a diverse instream environment. However, too much debris can be problematic and may result in large debris jams, causing backwater flooding and sediment deposition. Debris jams can also cause erosion of the stream banks that can lead to damage of riparian lands and property.

The 2010 Salt Creek Stream Assessment for TMDL watersheds identified specific locations of debris jams. These areas were confirmed and supplemented with data obtained during the 2016 and 2017 field assessment. In total, nine large debris jams were observed on the Salt Creek main stem.

Three of the debris jams were located at bridges or near structures and should be cleared to prevent upstream flooding at South 25th Avenue in Twenty-Six Street Woods Forest Preserve, just west of US 12/45, and north of St. Charles Road. The remaining debris jams were observed in forested areas and do not appear to be affecting water levels of adjacent properties. As such, it would be up to the landowner to determine if the debris jam is a problem and should be removed.⁴¹ Figure 32 denotes the locations of the observed debris jams in the Lower Salt Creek watershed.

3.5.2.7 Dams

The principal dams in the Lower Salt Creek watershed are described below (ordered north to south), and their locations are shown in Figure 32.

Itasca Country Club Dam -- The Itasca Country Club Dam is located on Spring Brook Creek approximately 50 feet upstream of Prospect Avenue in Itasca. This dam is privately owned and maintained. No other information is available.

Lake Kadijah Dam – The Lake Kadijah Dam is located within the Medinah Country Club, ½ mile upstream of Rohlwing Road/IL Route 53. This dam is maintained by the Medinah County Club and serves as part of the DuPage County Division of Stormwater Management Spring Creek Reservoir operation system.



Lake Kadijah dam.

⁴¹ Stream debris and blockages can be reported to DuPage County Stormwater Management via phone (630-407-6700), email (<u>Stream.Maintenance@dupageco.org</u>), or online (<u>https://gis.dupageco.org/citizenreporter/</u>).



Hoffman Estates Busse Lake Niles Schaumbu Park Ridge Chicago 190 6 lorridge (12) Des Cook County Franklin Park Elmwood Park River Ley 7 Glendale Heights River Gro Carol Melrose Park 13 2 2 355 Fores DuPage 9 Belly County Maywood Lom Hillsi 8 Park Glen Ellyn (14) Wheaton 9 rth age Subwatershed Units Dup 1: Salt Creek North 3 2: Salt Creek Central à Oal 10 3: Salt Creek South 4: Salt Creek Southeast 5: Devon Ave Tributary 4 6: Spring Brook Creek 7: Westwood Creek 8: Sugar Creek 9: Oak Brook Tributary 10: Ginger Creek Downers Grove 11: Bronswood Tributary 12: Addison Creek North 294 McCook 55 13: Addison Creek Central 14: Addison Creek South CoLMap date: February 17, 2017 Lower Salt Creek Planning Area **Recurring Debris Jams** 2 Forest Preserves Miles Subwatersheds Waterbodies Log Jam County Line Streams and Rivers Control Structure (bank) Chicago Metropolitan Agency for Planning Townships Control Structure (bed) Municipalities = Interstates

Figure 31. Locations of recurring debris jams in main stem Salt Creek in the Lower Salt Creek planning area.



Oak Meadows Golf Course Dam – The Oak Meadows Golf Course dam (construction date unknown) was located on Salt Creek within the Oak Meadows Golf Course. The golf course is maintained by the Forest Preserve District of DuPage County and is located east of Addison Road and north of I-290. The dam was removed in 2015 during the re-development of the golf course.

Westwood Creek Dam – The Westwood Creek dam is located on Westwood Creek in Addison. The dam is approximately 500 feet east of Addison Road and 200 feet southwest of I-290 and is maintained by the Village of Addison. The dam was put on line in 1994 as part of an effort by the DuPage County Stormwater Management Division to reduce flooding in the area. Residential areas to the west along Westwood Creek are protected during flood events by closing the gates of the dam and pumping Westwood Creek to Louis' Reservoir, a two-stage, 210 acre-foot retention and detention



Westwood Creek dam.

area at the southwest corner of Lake Street and Villa Avenue.



Redmond Reservoir dam.

Redmond Reservoir Dam (George Street Reservoir) – The Redmond Reservoir dam is located on Addison Creek in Bensenville. Constructed in 1999, this dam is operated by the Village of Bensenville.

Mt. Emblem Cemetery Pond Dam– The Mt. Emblem Cemetery Pond is located in Bensenville at the southwest corner of Grand Avenue and County Line Road.

Graham Center Dam (Elmhurst Co. Forest Preserve Dam) – The Graham Center Dam is

located on Salt Creek near Elmhurst approximately ¼ mile east of Route 83 and ¼ mile south of Monroe Street. The dam was constructed in the early 1990s as a result of



Mt. Emblem Cemetery dam.

dredging on Salt Creek from Oak Brook north to this point. The structure was installed to allow



for a step down between the dredged and undredged portions of the river and to prevent sedimentation of the dredged portions. The structure was not intended to be a dam, but in low flow conditions acts as one. The dam originally consisted of a single line of sheet metal piling. However, the creek began to erode the banks at the point of contact with the sheet metal piling. This was repaired by cutting a notch in the original sheet metal piling and installing another line of sheet metal piling further downstream.

Old Oak Brook Dam – The Old Oak Brook dam is located on Salt Creek, downstream of 31st Street in Oak Brook. The dam



Graham Center dam.

is maintained by the Village of Oak Brook and is approximately 85 years old. The dam was originally built by Paul Butler in the 1920s to maintain an aesthetic pool on his property during low flow periods. The original structure of the Oak Brook Dam has undergone major rehabilitation over the last 20 years. There are two main spillway components: the fixed



Old Oakbrook dam.

elevation spillway and a gated "emergency" spillway. The gated spillway section consists of two steel vertical slide gates. The dam was rehabilitated in 1992. The primary spillway is 65 feet wide, with about three feet of head at normal flow conditions, and consists of grouted stone with a concrete cap. The left and right training walls consist of grouted stone and reinforced concrete, overlain to a larger extent by concrete filled fabriform mats.



Graue Mill Dam –The Graue Mill Dam is located on Salt Creek within the Fullersburg Woods Forest Preserve, 300 feet upstream of York Road near the Village of Oak Brook. Associated with Graue Mill, the dam is owned by the Forest Preserve District of DuPage County and is 83 years old. The adjacent historic mill was originally constructed in 1852. The mill and dam were rebuilt by the Civilian Conservation Corps in 1934. The dam is 123 feet across and 6.3



Graue Mill dam.

feet high. The impoundment created by the dam covers 16 acres and 3,900 linear feet.



Fox Lane Impoundment – The Fox Lane impoundment is an approximately 5 acre impoundment located on Salt Creek at river mile 10.00. The impoundment appears to be created by what seems to be the remnant foundation of a former dam. The remnants currently function as a large riffle under low to average flow conditions.

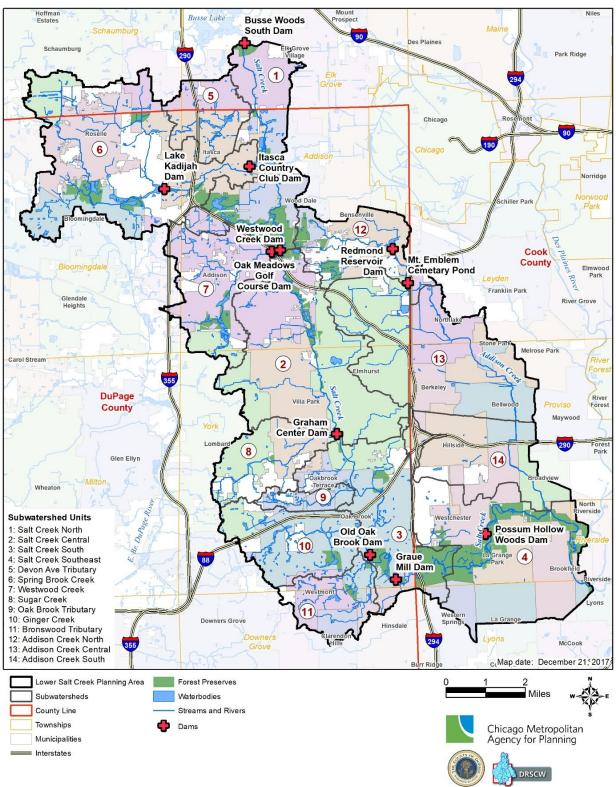
Fox Lake impoundment.

Possum Hollow Woods Dam – The Possum Hollow Woods dam is located in Westchester approximately 3/4 miles east of Wolf Road and ¹/4 mile north of 31st Street. It is on FPDCC property and does not create a notable impoundment. No additional information has been collected at this time.



Possum Hollow Woods dam.









3.5.3 Stormwater Detention Basins

Stormwater detention is accomplished by way of a variety of means. Historic wetlands, ponds, and lakes are very often the recipients of stormwater that is expedited to such depressional areas via ditches, culverts, and other traditional gray infrastructure. Of these, some have no natural outlet while others spill downhill or are evacuated via a lift station. Some wetlands may not have direct stormwater inputs but receive overland flow from other waterbodies that receive piped stormwater. Other detention basins are purposefully built in conjunction with newer developments or redevelopment. Of this last type, some basins are normally dry (i.e., dry bottom) and others retain water year round (i.e., wet bottom) unless designed as infiltration basins.

In an attempt to create a comprehensive inventory of detention basins throughout the Lower Salt Creek watershed, DuPage County Stormwater Management (DCSM) and CMAP staff identified basins throughout the study area using GIS data, aerial maps, permit records, and field visits. Following basin identification, DCSM and municipal partner staff or their consultants physically assessed those within the DuPage County portion of the planning area, compiling the data into an ESRI ArcGIS Collector Application created by DCSM. The app was based on a "rapid assessment" form provided by CMAP which in turn was based on protocols developed by the Lake County Stormwater Management Commission (LCSMC). CMAP and municipal partner staff or their consultants conducted assessments of accessible basins within the Cook County portion of the planning area, utilizing either the DCSM app or paper field forms. The following aspects of each detention basin were assessed:

- Type of basin (wet, wet with extended dry detention, dry turf, dry naturalized, constructed wetland)
- On-stream (yes/no, stream name)
- Connected to Other Basins (yes/no, upstream/downstream)
- Side Slope Cover types (turf grass, native plants, invasive plants, rip rap, seawall)
- Side Slope Angle (horizontal : vertical)
- Buffer Width (native plants)
- Water's Edge Cover types (not applicable, turf grass, native/wetland plants, invasive plants, rip rap)
- Basin Bottom Cover types (unknown, turf grass, native/wetland plants, submersed aquatic vegetation, invasive plants, concrete-lined channel)
- Shoreline Erosion (not applicable, minimal, slight, moderate, high)
- Safety Shelf presence (yes/no/unknown) and Wetland Vegetation presence (yes/no)
- Sediment Forebay presence (yes/no/unknown)
- Stilling Basin presence at Inlets and Outlets (yes/no/unknown)
- Short Circuiting (yes/no)
- Overall Water Quality Benefits Assessment (good, fair, poor)
- Management needs
- Retrofit opportunities within the basin and immediate contributing area



The types of basins found in the Lower Salt Creek watershed include dry naturalized, dry turf, wet, wet with extended dry, constructed wetland, and volunteer wetland. When well-designed and in good condition, these basins play an important water quality role by retaining stormwater runoff and filtering and settling pollutants before slowly releasing the runoff.

The number, location, type⁴², and relative water quality benefit of detention basins were determined for this plan. All things considered, the planning area appears to have at least 964 engineered features of the landscape that serve a stormwater detention role (Table 24, Figure 36, Figure 37). Unless something unique or unusual was obvious, the assessment of overall water quality benefit – good, fair, poor – is largely a function of detention basin type. Retrofitting opportunities and management needs were also noted (Appendix B).

				Detentic	on Basin	Туре		W	Q Bene	fit	
Political Jurisdiction	No. Basins ID'd	Wet	Dry- Turf	Dry- Nat.	Wet- Ext. Dry	Const. Wetlnd	Vol. Wetlnd	Good	Fair	Poor	Unas- sessed
Addison	80	35	26	5	7	1		16	9	49	6
Bellwood	2	1								1	1
Bensenville	15	6		1					3	4	8
Berkeley	8										8
Bloomingdale	65	36	22	3		4		12	11	42	
Broadview	2		1							1	1
Brookfield	3		1	1		1		2		1	
Clarendon Hills	4	3							1	2	1
Downers Grv	0										
Elk Grove Vlg	36	9	14		1	5		6		23	7
Elmhurst	44	20	10	7		5		6	16	20	2
Franklin Park	0										
Hillside	13	1			1		2		2	2	9
Hinsdale	12	7								7	5
Itasca	80	60	8	4	1	5		13	31	34	2
LaGrange	0										
LaGrange Pk	3	2	1						2	1	
Lombard	103	31	34	13	11	5		21	23	50	9
Lyons	0										

 Table 24. Summary of stormwater detention basins in the Lower Salt Creek planning area, by political jurisdiction.

⁴² Six types of detention basins are noted: 1) dry bottom – turf, 2) dry bottom –naturalized, 3) wet bottom, 4) wet bottom with an extended dry area, 5) constructed wetland, and 6) "volunteer" wetland.



Political Jurisdiction	No. Basins ID'd	Wet	Dry- Turf	Dry- Nat.	Wet- Ext. Dry	Const. Wetlnd	Vol. Wetlnd	Good	Fair	Poor	Unas- sessed
Maywood	0										
Melrose Park	1										1
N. Riverside	0										
Northlake	20	4	7		1	2	2	2	7	7	4
Oak Brook	148	117	1	1	2				26	95	27
Oakbrook Ter.	17	12		1		1		1	4	9	3
Roselle	37	18	7	4	1	1	1	4	9	19	5
Schaumburg	22	5	6		1	5		6	2	9	5
Stone Park	0										
Villa Park	57	12	29	9	3	3		5	16	35	1
Westchester	16	8	1			1	3	1	5	7	3
Western Springs	1										1
Westmont	41	22	1	2				2	9	14	16
Wood Dale	38	8	18	3	2			3	4	24	7
Unincorp. DuPage Co.	78	52	12	6	1	3		12	25	37	4
Unincorp. Cook Co.	18		1							1	17
Totals	964	469	200	60	32	42	8	112	205	494	153

Generally, basins providing "good" water quality benefits were either a) wet detention with a vegetated wetland shelf, native plant side slopes, and submersed aquatic vegetation, b) constructed wetlands, or c) dry detention with native vegetation throughout the basin bottom and side slopes (Figure 33). Basins providing "fair" water quality benefits were generally either a) wet detention with a vegetated wetland shelf, turf grass side slopes, and possibly submersed aquatic vegetation, or b) dry detention containing a native vegetation waterway or bioswale, or a native vegetation pre-outlet area (Figure 34). Basins providing "poor" water quality benefits were typically either a) wet detention with turfgrass side slopes, no or minimum vegetated wetland shelf, and possibly short-circuiting, or b) dry detention with turfgrass bottom, possibly a concrete-lined channel, and/or possibly short circuiting (Figure 35).



Su	bwatershed				Detentio	n Basin	Type		W	Q Bene	fit	
#	Name	No. Basins ID'd	Wet	Dry- Turf	Dry- Nat.	Wet- Ext. Dry	Const. Wetlnd	Vol. Wetlnd	Good	Fair	Poor	Unas- sessed
1	Salt Crk North	53	18	20	5	2	1		6	12	28	7
2	Salt Crk Cntrl	75	24	31	7	2	8		11	23	38	3
3	Salt Crk South	97	54	8	7	1	3		3	15	55	24
4	Salt Crk Southeast*	42	10	4	1	0	2	1	3	5	10	24
5	Devon Ave Trib	58	41	5	1	1	7		8	17	30	3
6	Spring Brook Crk	191	95	50	10	3	13	1	35	38	99	19
7	Westwood Crk	84	26	28	11	7	3		18	12	45	9
8	Sugar Crk	65	17	26	9	10			13	16	33	3
9	Oak Brook Trib	21	20				1		1	5	15	0
10	Ginger Crk	119	96	10	1	3	1		5	33	73	8
11	Bronswood Trib	56	26	2	2				2	6	22	26
12	Addison Crk North	48	29	4	2	2	2		5	8	26	9
13	Addison Crk Cntrl	42	12	10	4		1	2	2	11	16	13
14	Addison Crk South*	13	1	2		1		4		4	4	5
	Totals	964	469	200	60	32	42	8	112	205	494	153

Table 25. Summary of stormwater detention basins in the Lower Salt Creek planning area, by subwatershed.

* These subwatersheds lie entirely within Cook County.



Figure 33. Examples of detention basins providing "good" water quality benefits.



Springfield Park - Bloomingdale

Lake Street - unincorporated

Figure 34. Examples of detention basins providing "fair" water quality benefits.



Lake Street - unincorporated

Rose Drive - Bloomingdale

Figure 35. Examples of detention basins providing "poor" water quality benefits.











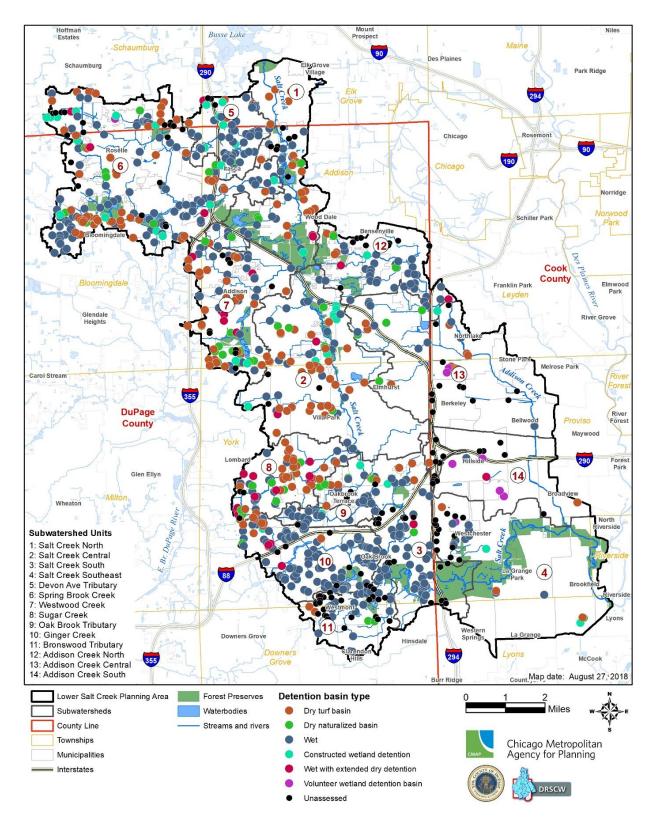


Figure 36. Stormwater detention basins by type in the Lower Salt Creek planning area.



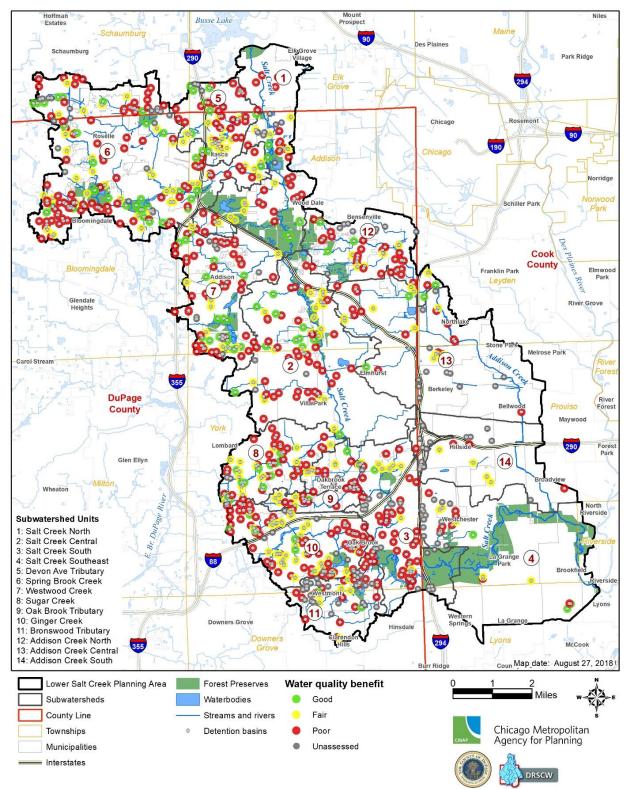


Figure 37. Stormwater detention basins by water quality benefit in the Lower Salt Creek watershed.



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3.5.4 Flood Control Reservoirs and Facilities

3.5.4.1 DuPage County-owned Reservoirs and Facilities

Spring Creek Forest Preserve Facility

Spring Creek Reservoir is an 870 acre-foot, or more than 283 million gallon, capacity reservoir located on Springbrook Creek, which is tributary to Lower Salt Creek. Located in the Spring Creek Forest Preserve, it is directly upstream of Lake Kadijah and the Medinah Country Club near the intersection of Lake Street and Medinah Road.

The single cell reservoir was constructed on the site of an abandoned gravel quarry. The flow of water into the reservoir is controlled by a gated chute spillway. When water reaches a trigger elevation, the gate is opened and floodwater from Springbrook Creek is directed into the reservoir. When water elevations in Springbrook Creek have receded, the pump station located adjacent to the gated chute spillway is used to pump water back into the creek. A sensor system is used to monitor water surface elevations and control the gates and pumps.

Meacham Grove Flood Control Facility

Constructed on the site of a former quarry, the Meacham Grove Flood Control Facility is located in the Village of Bloomingdale within the Meacham Grove Forest Preserve. This gravityoperated offline storage reservoir and adjacent wetland area provide 575 acre-feet, or more than 187 million gallons, of floodwater storage from nearby Springbrook Creek, which is the largest tributary to Salt Creek.

DuPage County Stormwater Management collaborated with the Forest Preserve District of DuPage County to design and construct the Meacham Grove Flood Control Facility in 1996. The facility is a major element within the Lower Salt Creek watershed, which serves to reduce flood damages in the area.

To mitigate for flooding, floodwater from Springbrook Creek is diverted first into a wetland via an earthen dam with a box culvert constructed across the Creek. During rain events, when elevations in both the Creek and wetland rise, floodwater will begin to spill over the labyrinth weir into the adjacent Meacham Grove reservoir. The labyrinth weir consists of a series of trapezoidal structures, which increase the effective length of the weir without increasing the actual length of the weir. Following floods, the reservoir drains by gravity through an outlet south of the flood control facility back into Springbrook Creek.

Wood Dale - Itasca Flood Control Reservoir

The Wood Dale - Itasca Flood Control Facility was excavated at the confluence of Springbrook Creek and Lower Salt Creek in the northeast portion of the DuPage County. The facility is located south of Thorndale Avenue, west of Wood Dale Road, north of Irving Park Road and east of Prospect Avenue. The facility is made up of four reservoir cells. Three of the cells are gravity drained and provide 325 acre-feet of stormwater storage. The gravity reservoirs are



located along the west side of Salt Creek. The larger pump evacuated cell is located along the east side of Salt Creek and provides 1,425 acre-feet of stormwater storage. The entire facility provides 1,750 acre-feet, or more than 570 million gallons, of storage for the Lower Salt Creek watershed.

Floodwater enters the pump-evacuated reservoir through a diversion weir, which consists of a series of four sluice gates located at the end of School Street in Wood Dale. During flood events, the sluice gates are opened to allow floodwater to flow down the spillway into the reservoir. The floodwater is temporarily stored until flood elevations along Salt Creek have receded. Stormwater is then pumped back to Salt Creek through a pump station and discharge channel.

Construction of the facility began in the early 1990s. Construction progressed through eight separate phases and was completed in 2002. The Wood Dale - Itasca Flood Control Facility provides flood protection to the downstream communities of Wood Dale, Addison, Villa Park, Elmhurst, and Unincorporated DuPage County.

Westwood Creek Dam & Pump Station

The Westwood Creek Dam and Pump Station is located in Addison, just east of Addison Rd and south of I-290. The facility is located across the Westwood Creek tributary to Salt Creek, approximately 800 feet upstream of the tributary mouth. When Salt Creek rises due to a rainfall event, the floodwater, in some cases, travels up various tributaries. In the case of one tributary, Westwood Creek, this "backwater" traveled far enough upstream to severely flood a residential neighborhood just west of Addison Road.

The Dam and Pump Station was constructed across Westwood Creek to prevent the floodwater from reaching the residential area. The dam has three moveable gates, normally left in the open position to allow Westwood Creek to flow through the dam to Salt Creek. However, when water elevation sensors on the downstream side of the dam sense that Salt Creek waters are "backing up" Westwood, the gates are automatically closed. The pumps then turn on to "lift" Westwood Creek water over the dam to prevent Westwood Creek from flooding the residential neighborhood. The gates then reopen when the sensors determine downstream conditions are safe. During operation, floodwater from Salt Creek is stored in Louis' Reservoir.

Louis' Reservoir

Louis' Reservoir is a 210 acre-foot, or 68.5 million gallon, reservoir located on the southwest corner of Lake Street and Villa Avenue at the old Louis' Restaurant site in Addison. It consists of one shallow cell and one deeper cell, which are connected by a pipe. When flooding occurs on Salt Creek, floodwater begins filling the shallow cell until it reaches the cross-connect pipe. At that point, it begins filling the deeper cell. The facility is de-watered after a flood event using the Village of Addison's Diversey Avenue pump station. The reservoir is connected to the pump station by a pipe that runs along the southern edge of the reservoir.

The Village of Addison maintains both Westwood Creek Dam & Pump Station and Louis' Reservoir.



Elmhurst Quarry Flood Control Facility

The Elmhurst Quarry Flood Control Facility is an 8,300 acre-foot, or 2.7 billion gallon, flood control facility. The reservoir takes advantage of the old Elmhurst Chicago Stone Quarry located south of North Avenue on Illinois Route 83 in Elmhurst. The two lobes of the quarry are separated by a rock high wall which supports West Avenue. There is a keyway in the wall, which allows diverted floodwater to fill both lobes. The East Lobe is the deeper of the two lobes with an average depth of 200 feet.

When Salt Creek water elevations near flood stage, staff open a sluice gate to allow floodwater to begin spilling into a diversion channel that conveys the water to a drop shaft. In extreme cases, floodwater may also spill over a fixed weird adjacent to Salt Creek. Floodwater then falls down the drop into a 400-foot long tunnel that carries the water under Route 83 into the west lobe of the Quarry. The floodwater is then held in the Quarry until in creek water levels have receded to safe levels. The water is then pumped back to Salt Creek at safe flow rates.



Elmhurst Qyarry West Lobe (left) and East Lobe (right).

Photos courtesy of DCSM

3.5.4.2 MWRD-owned Reservoirs

Northlake Reservoir

Northlake Reservoir is a flood control reservoir located in the City of Northlake, southwest of Grand Avenue and North Wolf Road and west of West Leyden High School. With a storage capacity of 415 acre-feet, the reservoir retains floodwater from the upper reaches of Addison Creek which provides downstream localized flood relief.⁴³ The reservoir is owned and managed by MWRD.

⁴³ Cook County Homeland Security, *Chapter 74. City of Northlake Annex*, <u>https://www.cookcountyhomelandsecurity.org/sites/default/files/theplan/Northlake.pdf</u>



<u>Hillside Reservoir</u>

Hillside Reservoir is a flood control reservoir located in the Village of Hillside at Fencl Lane. It has a storage capacity of 120 acre-feet and is the downstream-most reservoir in Cook County that discharges to Addison Creek.⁴⁴ The Hillside Reservoir was built in 1976 and continues to operate and be managed under the jurisdiction of MWRD.⁴⁵

Mayfair Reservoir

The Mayfair Reservoir, located in Westchester, is a stormwater control basin under the jurisdiction of MWRD. It was initially designed as a retention pond; however, it was maintained as a dry bottom basin with the integration of a pump station and dewatering pumps in 1975 to maximize flood storage and protection for the 100-year storm event (a storm that has a one percent chance of occurring within any given year).^{46,47} Over time, these operational changes were considered economically and environmentally inefficient. Pump station infrastructure continually needed repairs and used a significant amount of energy to keep the dewatering pumps running at a constant rate to ensure a dry bottom basin.

In 2016, the reservoir was expanded and retrofitted as a retention pond as a part of MWRD's Phase II Stormwater Management Program. It was redesigned to support native plants throughout the basin bottom and allow for some water to remain in the bottom, which was already occurring from natural springs located underneath the pond. The expansion increased the reservoir's storage capacity by 34 acre-feet, from 84 acre-feet to 118 acre-feet. According to MWRD, the project will result in direct flood reduction for 60 structures and a reduction of storm-related impacts for approximately 120 homeowners.⁴⁸ The native plants in the reservoir's natural area also provide habitat for dragonflies and birds that substantially contribute to mosquito abatement in the Village. As a result, the Village does not spray mosquito abatement chemicals to ensure wildlife is protected.

⁴⁸ MWRD, Stormwater Capital Improvement Projects <u>http://www.westchester-</u> <u>il.org/DocumentCenter/View/3479/20170419-Stormwater-Capital-Improvement-Projects-Addison-Creek?bidId</u>=



⁴⁴ Detailed Watershed Plan for the Lower Des Plaines River Watershed, *Section 3.2, Addison Creek*. Prepared for MWRD by Christopher B. Burke Engineering, Ltd., Feb. 2011.

⁴⁵ Brownfield Listings, Request for Statement of Interest in Implementation of the Roosevelt Road Redevelopment Plan, <u>https://brownfieldlistings.com/download/535/listing</u>

⁴⁶ Village of Westchester, *Mayfair Reservoir Information*, <u>https://www.westchester-il.org/360/Mayfair-Reservoir-Information</u>

⁴⁷ MWRD, Press Release: Officials break ground on Mayfair Reservoir Expansion I Westchester, October 2014, <u>https://www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/News%26Media/Newsroom/Media/Press_Releas</u> <u>es/2014/14_1028_Mayfair_Westchester_groundbreaking_rev.pdf</u>

3.5.4.2 Other Major Reservoirs

Redmond Reservoir

The Redmond Reservoir is a flood control facility and recreational community amenity located in the Village of Bensenville in DuPage County, directly south of the O'Hare International Airport near Third Avenue and John Street. In addition to providing Bensenville with flood storage, the reservoir (also known as Redmond Lake) is a part of the Redmond Recreation Complex (i.e., Redmond Park). A multi-use path circles the reservoir and there are multiple natural areas for fishing along its edges.⁴⁹

The reservoir was built with a storage capacity of approximately 690 acre-feet.⁵⁰ It operates with three pumps and an outlet flow structure that enters Addison Creek, south east of the Addison Creek Culvert Improvements.⁵¹ However, its initial capacity was deemed insufficient in recent years. An increase in development and extreme weather events has also led to more severe and frequent flooding. In response, Bensenville hired Engineering Resource Associates, Inc. to perform a hydrologic and hydraulic analysis of the reservoir as well as prepare a report of their findings and recommendations for expanding the reservoir. After the Village board adopted the report in early 2016, Bensenville pursued resources and partnerships to fund the expansion.⁵² The expansion project will increase the reservoir's storage capacity by 20 acre-feet, as well as upgrade pump station infrastructure, integrate native plantings and a rock toe, stabilize the shoreline, and resurface the encompassing walking path. The project is expected to be completed in May 2021.⁵³

⁵³ Village of Bensenville, Department of Public Works, *Information Letter No. 1 Redmond Reservoir Expansion Project*, April 2018, <u>https://www.bensenville.il.us/DocumentCenter/View/14152/Information-Letter-1---Construction-Phase-?bidId=</u>



⁴⁹ Village of Bensenville, Redmond Recreational Complex, <u>https://www.bensenville.il.us/867/Redmond-Recreational-Complex</u>

⁵⁰ Engineering Resource Associates, Inc., Redmond Reservoir Hydrologic & Hydraulic Analysis – Redmond Analysis Report (140301), March 2015, <u>https://www.bensenville.il.us/DocumentCenter/View/11301/Final-Redmond-Report---</u>reduced-size?bidId=

⁵¹ Engineering Resource Associates, Inc., *Redmond Reservoir Hydrologic & Hydraulic Analysis – Redmond Analysis Report* (140301), March 2015, <u>https://www.bensenville.il.us/DocumentCenter/View/11301/Final-Redmond-Report---reduced-size?bidId=</u>

⁵² Village of Bensenville, *Redmond Reservoir Expansion*, <u>https://www.bensenville.il.us/836/Redmond-Reservoir-Expansion</u>

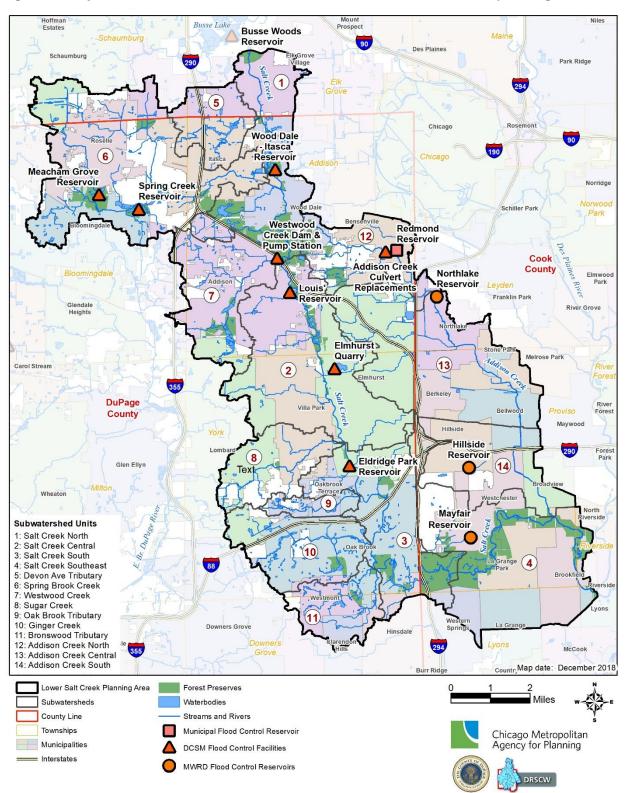


Figure 38. Major flood control reservoirs and facilities in the Lower Salt Creek planning area.



3.5.5 Groundwater Studies

No comprehensive groundwater studies have been conducted for the Lower Salt Creek watershed within the last 30 years. This research gap is due largely to the transition to Lake Michigan water for residential needs and has been identified as a critical action area in recent plans.

The first water study conducted in the region was the 1962 Ground-Water Resources of DuPage County, Illinois report. This report focused primarily on groundwater quantity and found that the county's four groundwater sources – glacial drift aquifers, the Silurian dolomite aquifer, the Cambrian-Ordovician aquifer, and the Mt. Simon aquifer – were being rapidly depleted, with the potential to overshoot sustainable withdraw levels as early as 1977.⁵⁴ A follow-up 1986 report, Public Ground-Water Supplies in DuPage County, found that groundwater depletion was a continued problem, leading to an average annual drawdown of 12 feet per year. The report also included more information about water quality. Of the 65 public wells studied, one was found to exceed safe chloride levels and five wells were found to contain traces of sulfide gas.⁵⁵

Between late 2000 and early 2002, a study initiated by the Illinois EPA of residential wells in the neighboring communities of Lisle and Downers Grove, located southwest of the planning area, found unsafe levels of trichloroethylene (TCE) and tetrachloroethylene (PCE) in 900 private wells. Immediately following the release of this study, the Illinois Department of Public Health launched an investigation into the potential for TCE/PCE-related cancer occurrence but concluded that there was no link between the contamination and local cancer rates.⁵⁶

Due to these concerns, groundwater has largely been phased out for residential use within the Lower Salt Creek Planning area (Figure 39). With the exception of Western Springs,⁵⁷ residents in the planning area receive their drinking water from Lake Michigan, via the City of Chicago (see Section 3.7.5 Community Water Supply Wells, Setbacks, and Groundwater Restricted Use Areas). DuPage County made this switch in the 1990s, while municipalities northern and east of the



⁵⁴ State of Illinois, Department of Registration and Education, Illinois State Water Survey & Illinois State Geological Survey, "Ground-Water Resources of DuPage County, Illinois," by Arthur J. Zeizel, William C. Walton, Robert T. Sasman, and Thomas A. Prickett, iswscoop-2, Illinois: 1962, <u>http://www.isws.illinois.edu/pubdoc/coop/iswscoop-2.pdf</u> (accessed October 26, 2016).

⁵⁵ State of Illinois, Department of Energy and Natural Resources, Illinois State Water Survey, "Public Ground-Water Supplies in DuPage County," by Dorothy M. Woller, Ellis W. Sanderson, and Michael L. Sargent. ISWS/BUL-60(32)/86, Champaign, Illinois: IDENR, 1986, <u>http://www.isws.illinois.edu/pubdoc/B/ISWSB-60-32.pdf</u> (accessed October 26, 2016).

⁵⁶ State of Illinois, Illinois Department of Public Health, Division of Epidemiologic Studies, Epidemiologic Report Series 05:02, *Examining Potential Relationships between Cancer Incidence and Ground Water Contamination with Trichloroethylene (TCE) and Tetrachloroethylene (PCE) in Lisle and Downers Grove*, by Baozhen Qiao, Lloyd Evans, and Tiefu Shen. , Springfield, IL: Illinois Department of Public Health, September 2005, http://www.idph.state.il.us/about/epi/DuPageReport.pdf (accessed October 17, 2017).

⁵⁷ In the past Western Springs had been granted a Lake water allocation, however, the overall costs were not seen as a viable option for the Village.

County's border made the switch in the 1980s and as early as the 1970s, respectively.⁵⁸ This transition has enabled the region to continue growing, despite water concerns, and has greatly reduced the amount of resources dedicated to monitoring groundwater quality and quantity.

3.5.5.1 Sensitive Aquifer Recharges Areas

Despite this transition from groundwater, the 1989 DuPage County Stormwater Management Plan recognizes the importance of maintaining a healthy aquifer and requires watershed plans to identify remedial measures to protect wetlands, riparian zones, and sensitive recharge areas.⁵⁹ In northeastern Illinois, county-focused mapping of shallow aquifer susceptibility to contamination has been conducted for McHenry⁶⁰ and Kane⁶¹ Counties to date. The Illinois State Geological Survey has completed 3-D hydrogeologic mapping in Lake County, has the beginnings of a 3-D map for Kendall County, and is in year two of a three year project to do so in Will County, and from this data an aquifer sensitivity map can be generated. At the current level of manpower and funding, it is anticipated that 3-D hydrogeologic mapping could be completed in 2020 for DuPage County and by 2025 for Cook County.⁶²

⁶² Brandon Curry, Illinois State Geological Survey, personal correspondence, December 10, 2015.



⁵⁸ Westchester, North Riverside, La Grange Park, and Broadview are four municipalities intersecting the Lower Salt Creek watershed planning area that have always received their drinking water from Lake Michigan.

⁵⁹ DuPage County Department of Stormwater Management, DuPage County Stormwater Management Plan, 1989, <u>http://www.dupageco.org/EDP/Stormwater_Management/1163/</u>

⁶⁰ McHenry County, GIS Department, *McHenry County Sensitive Aquifer Recharge Areas*, 2008, <u>https://www.co.mchenry.il.us/home/showdocument?id=8212</u>

⁶¹ State of Illinois, Illinois Department of Natural Resources, Illinois State Geological Survey, "Aquifer Sensitivity to Contamination, Kane County, Illinois," by W.S. Dey, A.M. Davis, and B.B. Curry, ICGM Kane-AS: 2007, <u>http://www.isgs.illinois.edu/sites/isgs/files/maps/county-maps/kane-as.pdf</u> (accessed Feb. 14, 2017).

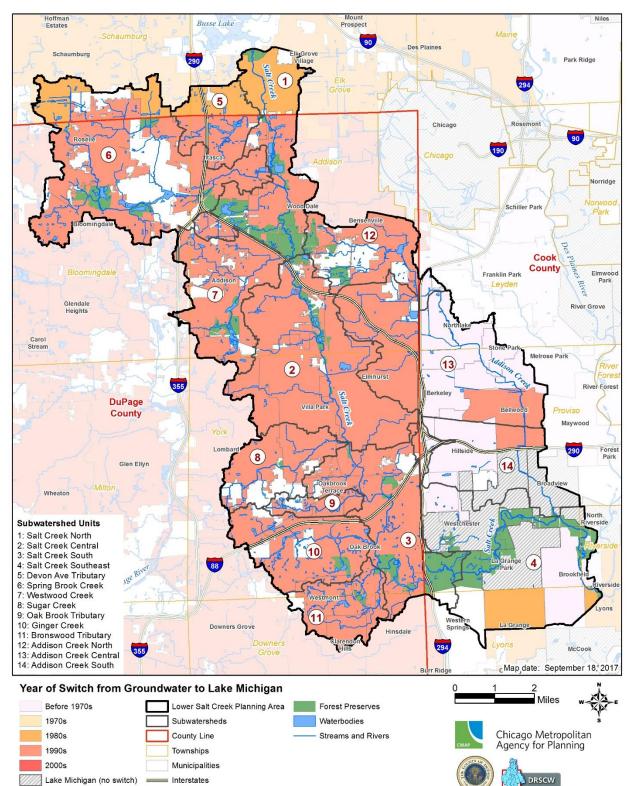


Figure 39. Shift to Lake Michigan drinking water by decade in the Lower Salt Creek planning area.



Chicago Metropolitan Agency for Planning

Lower Salt Creek Watershed-Based Plan

3.5.6 Surface Water Quality

3.5.6.1 Designated Uses, Assessment and Impairment Status

The Illinois Integrated Water Quality Report (Integrated Report) and Section 303(d) List [303(d) List] comprise a major source of information available for assessing stream health and identifying sources of impairment on the part of watershed planning initiatives statewide. These documents are released every two years by the Illinois Environmental Protection Agency (Illinois EPA), with the most recent Integrated Report issued in 2016. The purpose of the Integrated Report is to provide water quality data for both surface and ground waters and to fulfill Section 303(d) of the federal Clean Water Act and the Water Quality Planning and Management regulation at 40 CFR Part 130 for the State of Illinois.⁶³

This watershed plan focuses on the surface water data as it relates to waterbodies within the Lower Salt Creek planning area. The Integrated Report seeks to assess the extent to which waterbodies support a set of recognized designated uses. Each designated use has a related standard for which the designated use for that stream or lake is protected. Illinois EPA has seven possible designated uses; however, only five of those uses apply within the Lower Salt Creek planning area. These are Aquatic Life, Fish Consumption, Primary Contact, Secondary Contact, and Aesthetic Quality. A waterbody is considered not fully supporting of a designated use if it does not meet the related standard. These standards are derived from several types of information including biological data, water chemistry, instream habitat, and toxicity data. Table 26 shows the three tier rating system associated with each standard.

Table 26. Levels of designated use support and associated water quality impairment classification
used by Illinois EPA.

Level of Designated Use Support	General Resource Quality	Relationship to Water Quality Standard	Impaired? (on 303(d) List)
Fully Supporting	Good	Meets Standard	No
Not Supporting	Fair	Does not meet standard	Yes
Not Supporting	Poor	Does not meet standard	Yes

Waters found to be not fully supporting of any of the seven designated uses as an outcome of an assessment are said to be impaired and placed on the 303(d) List. Removing waterbodies from the 303(d) List is a main objective of watershed planning projects like the Lower Salt Creek Watershed-Based Plan.



⁶³ Illinois Environmental Protection Agency, Bureau of Water, *Illinois Integrated Water Quality Report and Section 303(d) List*, 2012. Illinois: IEPA, 2012, <u>http://www.epa.state.il.us/water/tmdl/303d-list.html</u>, (accessed February 2, 2015).

Numerous waterbodies (stream segments and lakes) in the Lower Salt Creek planning area have been assessed for water quality impairments (Figure 40). The following tables (Table 27 through Table 34) summarize the designated uses, assessment status, impairment status, and causes and sources of impairment for waterbodies within the Lower Salt Creek planning area as identified in the Integrated Report for 2016.⁶⁴

AUID	Stream Name	Miles	Use Attainment	Causes	Sources
IL_GLBA	Meacham Creek	2.49	N582, X583, X585, X586, X590	319, 322	58, 177
IL_GL-10	Salt Creek	3.71	N582, N583, N585, X586, F590	84, 96, 138, 246, 277, 301, 319, 322, 441, 274, 348, 400	20, 125, 28, 85, 177, 58, 132, 142, 140, 10
IL_GLB-01	Spring Brook	3.14	N582, X583, X585, X586, X590	84, 177, 213, 246, 319, 322, 371, 403, 462, 479	20, 28, 58, 85, 132, 177
IL_GLB-07	Spring Brook	4.19	N582, X583, X585, X586, X590	463	140
IL_GL-03	Salt Creek	10.52	N582, N583, X585, X586, X590	84, 177, 244, 322, 348, 371, 403, 462, 500, 274	20, 84, 28, 23, 115, 122, 177, 85, 142, 10, 140
IL_GL-09	Salt Creek	12.21	N582, N583, N585, X586, F590	79, 138, 277, 319, 322, 371, 403, 462, 274, 348, 400	28, 23, 85, 177, 58, 132, 142, 10, 140
IL_GL-19	Salt Creek	3.15	N582, N583, N585, X586, X590	84, 138, 319, 403, 462, 274, 348, 400	20, 23, 85, 177, 10, 140
IL_GLA-02	Addison Creek	6.71	N582, X583, N585, X586, N590	79, 84, 138, 154, 177, 246, 301, 319, 462, 500, 400, 181	28, 20, 72, 23, 85, 177, 132, 142, 84
IL_GLA-04	Addison Creek	3.44	N582, X583, X585, X586, N590	1, 84, 163, 246, 319, 322, 348, 371, 403, 462, 471, 479, 519	28, 20, 72, 125, 132, 85, 58, 177, 142

Table 27. Specific assessment information for streams in the Lower Salt Creek planning area,2016.

⁶⁴ Illinois Environmental Protection Agency, Integrated Water Quality Report and 303d Lists, 2016, <u>http://www.epa.illinois.gov/topics/water-quality/watershed-management/tmdls/303d-list/index</u> (accessed February 2, 2015).



AUID)	Lake Name	Acres	Use Attainment	Causes	Sources
IL_WGZQ	SONGBIRD (formerly BLACKBIRD)	15.0	X582, X583, X585, X586, X590	N/A	N/A
IL_RGZH	Lake Kadijah	25.9	X582, X583, X585, X586, X590	N/A	N/A
IL_RGN	Briarwood Central	25.0	I582, X583, X585, X586, I590	371, 478, 463	71, 122, 177, 28
IL_RGR	CHARLES	15.0	I582, X583, X585, X586, I590	462, 479	140
IL_WGZG	GROVE	8.0	I582, X583, X585, X586, I590	N/A	N/A
IL_WGZY	SWAN (formerly INDIAN)	4.0	F582, X583, X585, X586, N590	462, 479	134, 181

Table 28. Specific assessment information for lakes in the Lower Salt Creek planning area, 2016.

Table 29. Use support information for streams in the Lower Salt Creek planning area, 2016.

Designated Use	Stream Miles Fully Supporting (F)	Stream Miles Not Supporting (N)	Stream Miles Insufficient Information (I)	Stream Miles Not Assessed (X)
Aquatic Life (582)	-	49.56	-	-
Fish Consumption (583)	-	29.59	-	19.97
Primary Contact (585)	-	25.78	-	23.78
Secondary Contact (586)	-	-	-	49.56
Aesthetic Quality (590)	15.92	10.15	-	23.49
Total Stream Miles: 49.56				

Table 30. Use support information for lakes in the Lower Salt Creek planning area, 2016.

	Lake Acres	Lake Acres	Lake Acres	Lake Acres
	Fully	Not Supporting	Insufficient	Not Assessed
Designated Use	Supporting (F)	(N)	Information (I)	(X)
Aquatic Life (582)	4.0	-	48.0	40.9
Fish Consumption (583)	-	-	-	92.9
Primary Contact (585)	-	-	-	92.9
Secondary Contact (586)	-	-	-	92.9
Aesthetic Quality (590)	-	4.0	48.0	40.9
Total Lake Acres: 92.9				



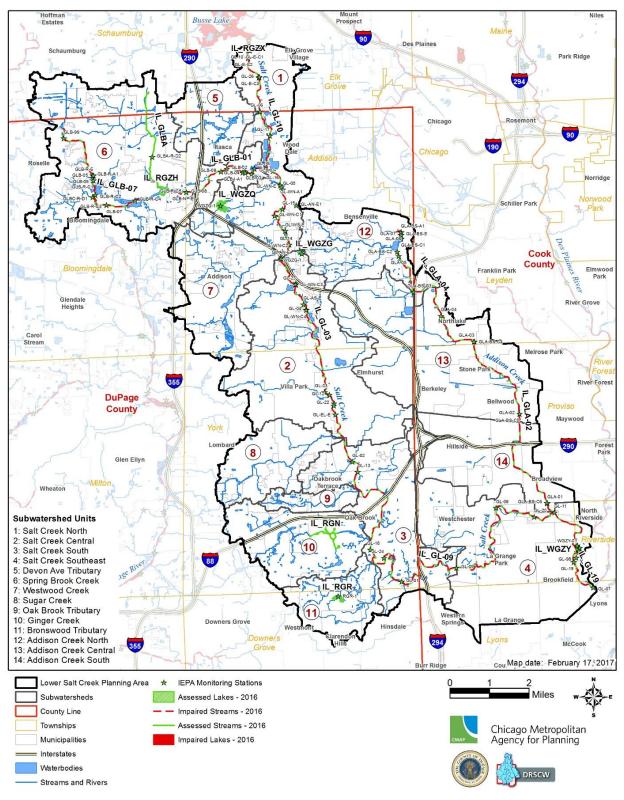


Figure 40. Illinois EPA monitoring stations and waterbody impairment status in the Lower Salt Creek planning area.



Cause ID	Cause Of Impairment	305(b) Stream Miles Impaired	Percentage of Total 305(b) Stream Miles (49.56)
462	Phosphorus (Total)	39.17	79.04
322	Oxygen, Dissolved	35.51	71.65
319	Other flow regime alterations	34.85	70.32
348	Polychlorinated biphenyls	33.03	66.65
403	Total Suspended Solids (TSS)	32.46	65.50
274	Mercury	29.59	59.71
371	Sedimentation/Siltation	29.31	59.14
138	Chloride	25.78	52.02
400	Fecal Coliform	25.78	52.02
84	Alteration in stream-side or littoral vegetative covers	23.96	48.35
177	DDT	20.37	41.10
79	Aldrin	18.92	38.18
500	Changes in Stream Depth and Velocity Patterns	17.23	34.77
246	Hexachlorobenzene	17.00	34.30
277	Methoxychlor	15.92	32.12
244	Heptachlor	10.52	21.23
301	Nickel	10.42	21.03
154	Chromium (total)	6.71	13.54
181	Debris/Floatables/Trash	6.71	13.54
479	Aquatic Algae	6.58	13.28
463	Cause Unknown	4.19	8.45
96	Arsenic	3.71	7.49
441	pH	3.71	7.49
1	.alphaBHC	3.44	6.94
163	Copper	3.44	6.94
471	Bottom Deposits	3.44	6.94
519	Visible Oil	3.44	6.94
213	Endrin	3.14	6.34
	Total Stream Miles: 49.56		

Table 31. Causes of impairments for streams in the Lower Salt Creek planning area, 2016.



Cause ID	Cause Of Impairment	305(b) Lake Acres Impaired	Percentage of Total 305(b) Lake Acres (92.9)
371	Sedimentation/Siltation	25.0	26.9
463	Cause Unknown	25.0	26.9
478	Aquatic Plants (Macrophytes)	25.0	26.9
462	Phosphorus (Total)	19.0	20.5
479	Aquatic Algae	19.0	20.5
	Total Lake Acres: 92.9		

Table 32. Causes of impairment for lakes in the Lower Salt Creek planning area, 2016.

Table 33. Sources of impairment for streams in the Lower Salt Creek planning area, 2016.

Source ID	Source Of Impairment	305(b) Stream Miles Impaired	Percentage of Total 305b Stream Miles (49.56)
177	Urban Runoff/Storm Sewers	45.37	91.55
85	Municipal Point Source Discharges	42.88	86.52
28	Contaminated Sediments	39.73	80.17
142	Dam or Impoundment	36.59	73.83
140	Source Unknown	33.78	68.16
23	Combined Sewer Overflows	32.59	65.76
20	Channelization	30.67	61.88
10	Atmospheric Deposition – Toxics	29.59	59.71
132	Upstream Impoundments (e.g., Pl- 566 NRCS Structures)	29.21	58.94
58	Impacts from Hydrostructure Flow Regulation/modification	24.99	50.42
84	Alteration in stream-side or littoral vegetative covers	17.23	34.77
115	Sanitary Sewer Overflows (Collection System Failures)	10.52	21.23
122	Site Clearance (Land Development or Redevelopment)	10.52	21.23
72	Loss of Riparian Habitat	10.15	20.48
125	Streambank Modifications/destabilization	7.15	14.43
	Total Stream Miles: 49.56		



Source ID	Source Of Impairment	305(b) Lake Acres Impaired	Percentage of Total 305(b) Lake Acres (92.9)
28	Contaminated Sediments	25.0	26.9
71	Littoral/shore Area Modifications (Non-riverine)	25.0	26.9
122	Site Clearance (Land Development or Redevelopment)	25.0	26.9
177	Urban Runoff/Storm Sewers	25.0	26.9
140	Source Unknown	15.0	16.1
134	Waterfowl	4.0	4.3
181	Runoff from Forest/Grassland/Parkland	4.0	4.3
	Total Lake Acres: 92.9		

Table 34. Sources of impairment for lakes in the Lower Salt Creek planning area, 2016.

The following table summarizes the causes of impairment for stream segments and lakes within the Lower Salt Creek planning area as identified in the 303(d) list (Appendix A-2 of the 2016 Integrated Report).

Table 35. 303(d) list information (causes of impairment) by waterbody in the Lower Salt Creek
planning area.

Water Name	Assessment ID	Water Size*	Designated Use	Cause
Addison Creek	IL_GLA-02	6.71	Aesthetic Quality	Debris/Floatables/Trash
Addison Creek	IL_GLA-02	6.71	Aquatic Life	Aldrin
Addison Creek	IL_GLA-02	6.71	Aquatic Life	Chromium (total)
Addison Creek	IL_GLA-02	6.71	Aquatic Life	DDT
Addison Creek	IL_GLA-02	6.71	Aquatic Life	Hexachlorobenzene
Addison Creek	IL_GLA-02	6.71	Aquatic Life	Nickel
Addison Creek	IL_GLA-02	6.71	Aquatic Life	Phosphorus (Total)
Addison Creek	IL_GLA-02	6.71	Primary Contact Recreation	Fecal Coliform
Addison Creek	IL_GLA-04	3.44	Aesthetic Quality	Bottom Deposits
Addison Creek	IL_GLA-04	3.44	Aesthetic Quality	Phosphorus (Total)
Addison Creek	IL_GLA-04	3.44	Aesthetic Quality	Visible Oil
Addison Creek	IL_GLA-04	3.44	Aquatic Life	alpha-BHC
Addison Creek	IL_GLA-04	3.44	Aquatic Life	Copper
Addison Creek	IL_GLA-04	3.44	Aquatic Life	Hexachlorobenzene
Addison Creek	IL_GLA-04	3.44	Aquatic Life	Phosphorus (Total)
Addison Creek	IL_GLA-04	3.44	Aquatic Life	Polychlorinated biphenyls
Addison Creek	IL_GLA-04	3.44	Aquatic Life	Sedimentation/Siltation
Salt Creek	IL_GL-03	10.52	Aquatic Life	DDT
Salt Creek	IL_GL-03	10.52	Aquatic Life	Heptachlor



Salt Creek	IL_GL-03	10.52	Aquatic Life	Phosphorus (Total)
Salt Creek	IL GL-03	10.52	Aquatic Life	Polychlorinated biphenyls
Salt Creek	IL_GL-03	10.52	Aquatic Life	Sedimentation/Siltation
Salt Creek	 IL_GL-03	10.52	Fish Consumption	Mercury
Salt Creek	 IL_GL-03	10.52	Fish Consumption	Polychlorinated biphenyls
Salt Creek	IL_GL-09	12.21	Aquatic Life	Aldrin
Salt Creek	IL_GL-09	12.21	Aquatic Life	Methoxychlor
Salt Creek	IL_GL-09	12.21	Aquatic Life	Phosphorus (Total)
Salt Creek	IL_GL-09	12.21	Aquatic Life	Sedimentation/Siltation
Salt Creek	IL_GL-09	12.21	Fish Consumption	Mercury
Salt Creek	IL_GL-09	12.21	Fish Consumption	Polychlorinated biphenyls
Salt Creek	IL_GL-09	12.21	Primary Contact Recreation	Fecal Coliform
Salt Creek	IL_GL-10	3.71	Aquatic Life	Arsenic
Salt Creek	IL_GL-10	3.71	Aquatic Life	Hexachlorobenzene
Salt Creek	IL_GL-10	3.71	Aquatic Life	Methoxychlor
Salt Creek	IL_GL-10	3.71	Aquatic Life	Nickel
Salt Creek	IL_GL-10	3.71	Aquatic Life	Oxygen, Dissolved
Salt Creek	IL_GL-10	3.71	Aquatic Life	рН
Salt Creek	IL_GL-10	3.71	Fish Consumption	Mercury
Salt Creek	IL_GL-10	3.71	Fish Consumption	Polychlorinated biphenyls
Salt Creek	IL_GL-10	3.71	Primary Contact Recreation	Fecal Coliform
Salt Creek	IL_GL-19	3.15	Aquatic Life	Phosphorus (Total)
Salt Creek	IL_GL-19	3.15	Fish Consumption	Mercury
Salt Creek	IL_GL-19	3.15	Fish Consumption	Polychlorinated biphenyls
Salt Creek	IL_GL-19	3.15	Primary Contact Recreation	Fecal Coliform
Spring Brook	IL_GLB-01	3.14	Aquatic Life	DDT
Spring Brook	IL_GLB-01	3.14	Aquatic Life	Endrin
Spring Brook	IL_GLB-01	3.14	Aquatic Life	Hexachlorobenzene
Spring Brook	IL_GLB-01	3.14	Aquatic Life	Phosphorus (Total)
Spring Brook	IL_GLB-01	3.14	Aquatic Life	Sedimentation/Siltation
Spring Brook	IL_GLB-07	4.19	Aquatic Life	Cause Unknown
SWAN (Indian Lk)	IL_WGZY	4.00	Aesthetic Quality	Phosphorus (Total)

The Clean Water Act requires that a Total Maximum Daily Load (TMDL) be developed for each pollutant of an impaired water body. The DuPage River/Salt Creek Watershed TMDL Stage 1 Report⁶⁵ was completed in October 2009. It addressed certain pollutants for Spring Brook (dissolved oxygen, fecal coliform), Salt Creek (fecal coliform, pH), and Addison Creek (fecal



⁶⁵ AECOM Inc. *DuPage River/Salt Creek Watershed TMDL Stage 1 Report*. EPA 10042-003-501. IL. AECOM, Oct. 2009, <u>http://www.epa.state.il.us/water/tmdl/report/dupage-salt/stage1.pdf</u>

coliform). Information in the Stage 1 report is being used to develop TMDLs; the Stage 3 TMDL report is expected to be completed in early 2017.⁶⁶

Aquatic Life Designated Use Assessment – Streams

Illinois EPA relies on biological, water chemistry, and physical habitat data to determine the extent to which a stream supports aquatic life. Primarily, three biological indices are used in assessing stream quality: the fish Index of Biotic Integrity (fIBI), the macroinvertebrate Index of Biotic Integrity (mIBI), and the Macroinvertebrate Biotic Index (MBI). Fish IBI scores can range from 1 to 60, mIBI scores from 0 to 100, and MBI scores from 0 to 11. For each index, higher scores indicate better stream quality. Table 36 presents these standards and interpretation related to these indices.

Table 36. Biological indicators and interpretation used for stream assessments by Illinois EPA	۹.

Biological Indicator: 67			
Fish Index of Biotic Integrity (fIBI)	≤ 20	> 20 and < 41	≥ 41
Macroinvertebrate Index of Biotic Integrity (mIBI)	≤ 20.9	> 20.9 and < 41.8	≥ 41.8
Macroinvertebrate Biotic Index (MBI) (used if mIBI is not available)	> 8.9	> 5.9 and ≤ 8.9	≤ 5.9
Interpretation:			
Impairment Status	Severe Impairment	Moderate Impairment	No Impairment
Designated Use Support	Not Supporting	Not Supporting	Fully Supporting
Resource Quality	Poor	Fair	Good

Illinois EPA uses a detailed decision matrix combining the biological indices scores with water chemistry data and habitat information to determine the level of aquatic life use support. One of the habitat information sources is another index, the Qualitative Habitat Evaluation Index, QHEI. The QHEI evaluates habitat corresponding to the physical features that affect fish and other biotic communities. The index ranks the conditions of six factors: substrate, instream cover, channel morphology, riparian and streambank conditions, pool and riffle quality, and steam gradient. QHEI scores range from 0 to 100 where higher scores indicate better quality habitat.



⁶⁶ Scott Ristau, Illinois Environmental Protection Agency, personal correspondence, November 15, 2016..

⁶⁷ Illinois Environmental Protection Agency, *Integrated Water Quality Report and 303d Lists, Volume I: Surface Water*, 2016, <u>http://www.epa.illinois.gov/topics/water-quality/watershed-management/tmdls/303d-list/index</u> (accessed February 2, 2015).

Table 37 shows the scores for the Aquatic Life biological indicators at the four stream stations assessed in the Lower Salt Creek watershed as part of Illinois EPA's 2013 Des Plaines River Basin survey.⁶⁸

	Stream Name & Station Code							
Biological Indicator:	Salt Creek GL-01	Salt Creek GL-09	Salt Creek GL-17	Addison Creek GLA-02				
Fish Index of Biotic Integrity (fIBI)	16							
Macroinvertebrate Index of Biotic Integrity (mIBI)	44.9	58.8	48.7	13.1				
Qualitative Habitat Evaluation Index (QHEI)	69.5	54.2	60.5	45				

Table 37. Biological indices scores for assessed streams in the Lower Salt Creek planning area,2013.

Fish Consumption Designated Use Assessment

Illinois EPA lists the specific causes for Fish Consumption impairment in Salt Creek Segments GL-03, GL-09, GL-10, and GL-19 to be polychlorinated biphenyl (PCB) and mercury contamination. PCBs can enter waterways from runoff flowing over poorly maintained hazardous waste sites that contain PCBs; illegal disposal of PCB waste; disposal of products containing PCBs that are dumped into landfills not authorized to handle PCB waste; and sites where electrical transformers containing PCBs have leaked.⁶⁹ Mercury is released into the atmosphere largely through the burning of coal and other fossil fuels. Airborne mercury descends to earth in rain or dust, where it can fall directly on waterbodies or be carried in with stormwater runoff. Table 38 contains the guidelines used in the Integrated Report for determining impairment status for Fish Consumption from PCBs and mercury.



⁶⁹ "Polychlorinated Biphenyls (PCBs) Basic Information," U.S. EPA, last modified April 8, 2013, last accessed December 1, 2014, <u>http://www.epa.gov/osw/hazard/tsd/pcbs/about.htm</u>



⁶⁸ Data provided by Roy Smogor, Illinois EPA, Bureau of Water, Springfield, IL, via email message to the author(s).

Degree of Use Support	Guidelines
Fully Supporting (Good)	PCBs are less than 0.06 mg/Kg and chlordane is less than 0.16 mg/kg in fish tissue in the two most recent years of samples for each species collected since 1985; and mercury is less than 0.06 mg/kg in fish tissue in the two most recent years of samples for each species collected since 1985, and those samples include at least one predator species of a "large size class" in two different years.
Not Supporting (Fair)	A water body-specific, "restricted consumption" fish consumption advisory is in effect; or, mercury is greater than or equal to 0.06 mg/kg in fish tissue of any species, in at least one of the two most recent years of samples collected in 1985 or later.
Not Supporting (Poor)	A "no consumption" (i.e., "Do Not Eat") fish-consumption advisory, for one or more fish species, is in effect for the general human population; or, a commercial fishing ban is in effect.

Table 38. Guidelines used by Illinois EPA for assessing fish consumption designated use.

3.5.6.2 DRSCW Stream Studies⁷⁰

The objectives of DRSCW's monitoring in the watersheds are multi-faceted and include the following:

- Characterize water quality conditions and trends throughout the watershed;
- Support the development of segment-specific water quality standards and in-stream targets, and projects ;
- Provide technical information to help guide implementation efforts; and
- Document the effectiveness of water quality management strategies.

Since 2006, the DRSCW has conducted numerous surveys in the Lower Salt Creek watershed including bioassessments, dissolved oxygen (DO) monitoring, and sediment oxygen demand (SOD) monitoring. Developing and implementing a monitoring program that produces credible data for decision making purposes involved various activities including establishing and documenting quality assurance procedures; training or hiring certified staff; purchasing and maintaining sampling equipment; collecting and managing samples; conducting quality assurance/quality control; and managing, analyzing, and reporting data. To date, the DRSCW has prepared and Illinois EPA has approved Quality Assurance Project Plans (QAPPS) for the bioassessment sampling program and continuous DO monitoring program. Table 39 details the sampling conducted by the DRSCW. Note that DRSCW monitoring includes sites outside the Lower Salt Creek watershed boundary upstream of the Busse Woods dam.

⁷⁰ This section written by Deanna Doohaluk, DRSCW, provided via email correspondences between Dec. 2017 and February 2018.



Parameters Surveyed	Dates Collected	Description	Report, Analysis, & Data
Water Column Chemistry	2006, 2010, 2013, 2016	Demand, nutrients, organics & metals collected at approximately 53 sites.	Biological and Water Quality Study of the East and West Branch DuPage Rivers and Salt Creek Watersheds (Bioassessment report) (2006, 2010, 2013*, 2016*). http://drscw.org/wp/bioassessment/
Modeled Dissolved Oxygen (DO)	2009	Calibrated and validated QUAL 2K DO model developed for Salt Creek. Prioritization analysis carried out by stakeholder	Stream DO Improvement Feasibility Study for Salt Creek. <u>http://drscw.org/wp/dissolved-oxygen/</u>
Dissolved Oxygen (continuous)	2006-2017 (June- August)	group. DO, pH conductivity and water temperature collected hourly.	Excel spreadsheet and Bioassessment Reports.
Conductivity (proxy for Chloride)	2008-2016 (Dec March)	DO, pH conductivity and water temperature collected hourly.	Conductivity and Chloride Monitoring Summary 2007/2008. Annual updates. Trends analysis 2007-2014.
Sediment Chemistry	2006, 2010, 2013, 2016	Organics and metals collected at approximately 23 sites.	Biological and Water Quality Study of the East and West Branch DuPage Rivers and Salt Creek Watersheds (Bioassessment report) (2006, 2010, 2013*, 2016*). http://drscw.org/wp/bioassessment/
Fish Survey	2006, 2010, 2013, 2016	Fish shocking survey on the mainstem and tributaries at approximately 53 sites.	Biological and Water Quality Study of the East and West Branch DuPage Rivers and Salt Creek Watersheds (Bioassessment report) (2006, 2010, 2013*, 2016*). http://drscw.org/wp/bioassessment/
Macroinvertebrate Survey	2006, 2010, 2013, 2016	Macorinvertebrate sampling on the mainstem and tributaries at approximately 53 sites.	Biological and Water Quality Study of the East and West Branch DuPage Rivers and Salt Creek Watersheds (Bioassessment report) (2006, 2010, 2013*, 2016*). <u>http://drscw.org/wp/bioassessment/</u>

 Table 39. Water quality data collected by DRSCW.



Parameters Surveyed	Dates Collected	Description	Report, Analysis, & Data
Physical Habitat Evaluation	2006, 2010, 2013, 2016	Qualitative habitat evaluation index (QHEI) on the mainstem and tributaries at approximately 53 sites.	Biological and Water Quality Study of the East and West Branch DuPage Rivers and Salt Creek Watersheds (Bioassessment report) (2006, 2010, 2013*, 2016*). <u>http://drscw.org/wp/bioassessment/</u>
SOD Survey (DO Feasibility Study)	2006-2007	Sediment oxygen demand sampling measured at 20 locations	Stream DO Improvement Feasibility Study for Salt Creek. <u>http://drscw.org/wp/dissolved-oxygen/</u>
Point Source Evaluation	2005-2017	Evaluation of flow and effluent quality for 10 Publically Owned Wastewater Treatment Plants.	Biological and Water Quality Study of the East and West Branch DuPage Rivers and Salt Creek Watersheds (Bioassessment report) (2006, 2010, 2013*, 2016*). http://drscw.org/wp/bioassessment/
Chlorides	2007 (with bi-annual updates)	Review of public roads loading and source reduction measures. Annual questionnaire to public agencies with winter road management responsibilities tracks progress of BMP uptake.	Chloride Usage Education and Reduction Program Study. <u>http://drscw.org/wp/chlorides-and-</u> <u>winter-management/</u>
Aquatic Life Stressor Analyis and Segment Prioritization	2012 (update proposed for 2018)	Causal analysis of proximate stressors to aquatic life and application of prioritization algorithm for mainstem and tributaries.	Priority rankings based on estimated restorability for stream segments in the DuPage River and Salt Creek watersheds. <u>http://drscw.org/wp/project-identification- and-prioritization-system/</u>
Canoe Survey of Channel Form Aerial Survey of Channel Form	2006 2007 USGA aerial flyover videos	Geo-referenced images of Salt Creek. 30 min flyover DVDs with geo-references readout.	Geo-database file. Geo-references DVD of Salt Creek.

*2013 and 2016 reports are under development



Bioassessment

In 2006, the DRSCW initiated an extensive bioassessment program within the watershed. This component of the monitoring work will provide expanded information about water quality conditions across the watersheds from a spatial perspective. Through bioassessment sampling, the DRSCW established baseline information on fish, macroinvertebrates, and habitat, as well as water and sediment chemistry. To track trends, subsequent sampling will be conducted every five years.

Approximately 51 sites in the Salt Creek watershed were sampled in 2006, 2010, 2013, and 2016 (Figure 41). Water quality and sediment parameters analyzed include:

- **Demand Parameters:** 5 Day Biological Oxygen Demand(BOD), Chloride, Conductivity, Dissolved Oxygen (DO), pH, Temperature, Total Dissolved Solids (TDS), and Total Suspended Solids (TSS)
- **Nutrients:** Ammonia, Nitrogen (Nitrate+Nitrite), Total Kjeldahl Nitrogen (TKN), and Total Phosphorus (TP)
- Metals: Cadmium, Calcium, Copper, Iron, Lead, Magnesium, and Zinc
- **Organics Water:** Polychlorinated bi-phenyls (PCBS), Pesticides, Semivolatile Organics (SVOCs), Volatile Organics (VOCs)
- Sediment Metals: Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Nickel, Potassium, Silver, and Zinc
- Sediment Organics: Organochlorine Pesticides, PCBS, PAHs, Percent Moisture, SVOCs, and VOCs

Additional information and results of the Bioassessment Program can be found at <u>http://www.drscw.org/bioassessment.html</u>.

Dissolved Oxygen Monitoring

The DRSCW launched the continuous dissolved oxygen (DO) monitoring network in 2006. Prior to that, DO was monitored continuously at four sites on Salt Creek under the authority of Metropolitan Water Reclamation District of Greater Chicago (MWRD). In 2006, the DRSCW established five (5) additional DO monitoring stations on Salt Creek for a total of nine (9) monitoring locations. As of 2016, six (6) continuous monitoring locations are maintained along Salt Creek: three (3) by MRWD and three (3) by the DRSCW. The DO monitoring sites were selected for calibrating the QUAL2K model and therefore do not correlate exactly with the bioassessment sites. The DO sites maintained by MWRD are at Wolf Road, Busse Woods, and Thorndale Avenue (none are bioassessment sites). The DO sites maintained by DRSCW are SCBR (Salt Creek at Butterfield Road – not a bioassessment site), SCFW (impoundment upstream of Graue Mill dam – not a bioassessment site as bioassessment site is in the freeflowing river and not in the impoundment), and SCOM (Salt Creek at the former Oak Meadows Dam -- this will correlate with the new bioassessment site SC35A).



Each of the continuous DO monitoring sites are equipped with a HydroLab DS 5X and collect continuous DO and hourly data on pH, conductivity and water temperature from April through to October (the seasonal period recognized as containing the lowest annual levels of stream DO).

As the 2004 TMDL reports prepared by the IEPA for Salt Creek addressed the impact that sediment oxygen demand can have on DO levels. The DRSCW conducted a one-time (one time but over 2 years) sediment oxygen demand study that involved monitoring at 20 sites throughout the watershed. The data from this monitoring project was used to develop an updated water quality model and help the DRSCW to better understand the sources affecting DO levels.

The current DO data collection, data analysis, and modeling efforts focus primarily on dry weather conditions and post-project monitoring. Given that data have also revealed wet weather DO concerns, the DRSCW is considering initiating work focused on the DO impacts of wet weather events.

Additional information and the results of the DO monitoring project can be found at: <u>http://drscw.org/wp/dissolved-oxygen/</u>.

Chlorides

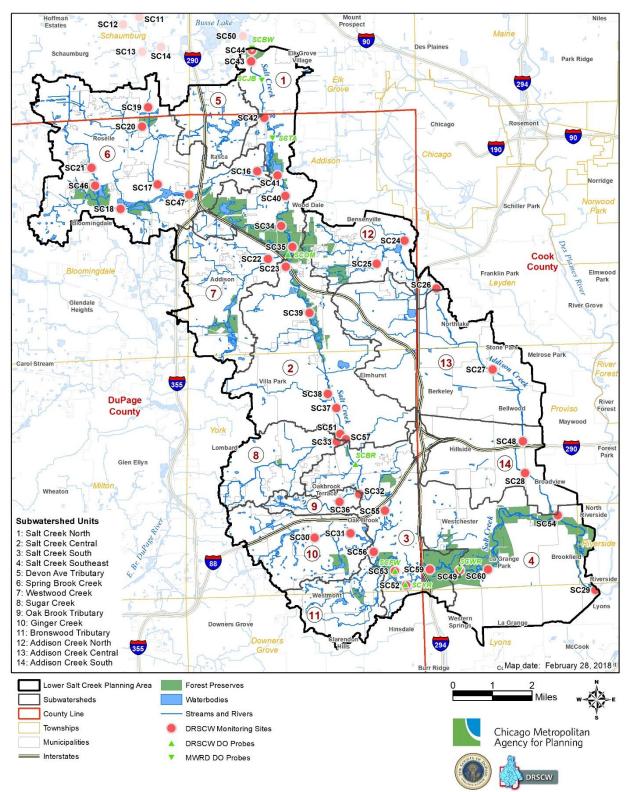
The DRSCW monitors chlorides in the summer at 35 sites using grab samples. Additionally, 215 chloride samples are gathered throughout the watershed as part of the bioassessment program. A 2008 study in the plan area established a statistical correlation between chloride and conductivity, allowing conductivity to be collected as an inexpensive and reliable surrogate for chlorides. MWRD also conducts winter-season continuous conductivity monitoring at two sites: Wolf Road and Thorndale Avenue.

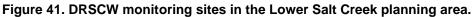
Summary of Water Quality Results and Trends

Based on sampling conducted within the Salt Creek watershed by the Midwest Biodiversity Institute for the DRSCW in accordance with Illinois EPA criterion, biological assemblages sampled are rated poor to fair. No fish Index of Biological Integrity (fIBI) values met the "good" Illinois EPA criterion, and "good" macroinvertebrate IBIs (mIBI) were limited to only three sites located within the lower 7.6 miles of the Salt Creek mainstem. Because of the low biological performance, none of the 51 sites sampled within the watershed fully supported Illinois EPA aquatic life use goals.

Table 40 includes the status of aquatic life use support for all sites sampled in the Salt Creek watershed along with fIBI, mIBI, and QHEI values and identified potential causes of impairment. A comprehensive discussion of the sampling methods, results, and trends is available in the reports provided by the DRSCW on their website as referenced above in Table 39.









Site ID	River Mile	Drainage Area (sq mi)	fIBI	fIBI Support Status	MIwb*	mIBI	mIBI Support Status	QHEI	Aquatic Life Use Attainment Status	Associated Causes of Impairment
Subwa	Subwatershed #1: Salt Creek North									
SC43	29.00	48.38	17	Poor	7.37	33.1	Fair	64.5	Non - Poor	Siltation, D.O., PAHs
SC42	27.00	53.5	17	Poor	6.6	23.6	Fair	72	Non - Poor	Siltation, D.O., PAHs
SC41	25.00	70	19	Poor	6.84	36.6	Fair	61	Non - Poor	Siltation, D.O., PAHs
SC40	24.50	75	13	Poor	5.79	7.41	Poor	55.5	Non - Poor	Siltation, D.O., PAHs, Unknown Toxicity
SC34^	23.50	76	15	Poor	6.18	23.2	Fair	51	Non - Poor	^2013 data. See note
SC35^	23.00	80	18	Poor	6.63	24.1	Fair	55.5	Non - Poor	below.
Subwa	tershed	#2: Salt Cre	ek Cei	ntral			•			
SC23	22.50	84	14	Poor	6.05	21.2	Fair	56	Non - Poor	Siltation, D.O., PAHs. Unknown Toxicity
SC39	20.50	86	14	Poor	5.24	37.2	Fair	66	Non - Poor	Siltation, D.O., PAHs
SC38	18.00	87	12	Poor	4.81	35.3	Fair	72.3	Non - Poor	Siltation, D.O., PAHs
SC37	17.50	95	11	Poor	5.13	30.3	Fair	71.5	Non - Poor	Siltation, D.O., PAHs
SC51	17.00	95	12	Poor	4.94	33.6	Fair	76.5	Non - Poor	Siltation, D.O., PAHs
SC57	16.50	95	13	Poor	5.39	27.1	Fair	63.5	Non - Poor	Siltation, D.O., PAHs
Subwa	tershed	#3: Salt Cre	ek Sou	ıth						
SC55	13.50	102	13	Poor	5.01	12	Poor	38	Non - Poor	Habitat, Siltation, D.O., PAHs
SC56	12.50	107	16	Poor	5.76	20.2	Poor	41.5	Non - Poor	Habitat, Siltation, D.O., PAHs
SC53	11.00	110	16	Poor	6.28	16.1	Poor	42.5	Non - Poor	Habitat, Siltation, D.O., PAHs

Table 40. Status of aquatic life use support for stream segments in the Salt Creek watershed,2016.



							1		1	n
SC52	10.50	112	25	Fair	8.33	35.8	Fair	79.5	Non - Fair	Siltation, D.O., PAHs
SC59	9.10	113	25	Fair	7.23	41.5	Fair	86.5	Non - Fair	Siltation, D.O., PAHs
Subwa	Subwatershed #4: Salt Creek Southeast									
SC49	8.00	114	24	Fair	6.79	41.8	Full Support	74	Non - Fair	Siltation, D.O., PAHs
SC60	7.20	118	15	Poor	6.31	49.3	Full Support	75.5	Non - Poor	Siltation, D.O., PAHs
SC54	3.00	145	21	Fair	6.22	35.9	Fair	71.5	Non - Fair	Siltation, PAHs
SC29	0.50	150	25	Fair	6.77	48.9	Full Support	76.8	Partial	Siltation, PAHs
Subwa	tershed	#5: Spring l	Brook	Creek						
SC20	0.25	2	14	Poor	n/a	13.5	Poor	41.5	Non - Poor	Habitat, Siltation, Ammonia
SC17	0.40	4.8	13	Poor	n/a	19.9	Poor	29		Habitat, Siltation
SC21	6.50	2	14	Poor	n/a	15.8	Poor	72.8	Non - Poor	Habitat, Siltation, Chloride
SC46	6.00	3.5	14	Poor	n/a	25.3	Fair	69.5	Non - Poor	Habitat, Siltation, Chloride
SC18	4.50	6.28	13	Poor	n/a	20.6	Poor	72.3	Non - Poor	Habitat, Siltation, Chloride
SC47	2.50	10	21	Fair	n/a	18.5	Poor	64	Non - Poor	Habitat, Siltation, Chloride, TSS, TKN
Subwa	tershed	#7: Westwo	od Cre	ek						
SC22	0.50	4	13	Poor	n/a	26	Fair	51.5	Non - Poor	Habitat, Siltation, TKN
Subwa	tershed	#8: Sugar C	reek							
SC33	0.25	3.5	13	Poor	n/a	9.63	Poor	43	Non - Poor	Habitat, Siltation



Subwa	Subwatershed #9: Oak Brook Tributary									
SC36	0.50	0.8	18	Poor	n/a	11.4	Poor	55	Non - Poor	Habitat, Siltation, Chloride
SC32	0.25	1.2	24	Fair	n/a	17.1	Poor	64.5	Non - Poor	Habitat, Siltation, Chloride
Subwa	tershed	#10 Ginger	Creek							
SC30	1.50	5.2	12	Poor	n/a	16	Poor	70	Non - Poor	Siltation
Subwa	tershed	#12: Addiso	on Cree	ek North						
SC24	10.50	2	6	Poor	n/a	16.4	Poor	41	Non - Poor	Habitat, Siltation, PAHs
SC25	0.50	1	18	Poor	n/a	11.7	Poor	50.5	Non - Poor	Habitat, Siltation, Ammonia, D.O.
SC26	8.00	5	5.5	Poor	n/a	19.3	Poor	66	Non - Poor	Habitat, Siltation, PAHs
Subwa	tershed	#13: Addisc	on Cree	ek Central						
SC27	5.00	10	12	Poor	n/a	13.4	Poor	56	Non - Poor	Habitat, Siltation, PAHs
Subwa	Subwatershed #14: Addison Creek South									
SC48	2.50	18	11	Poor	n/a	8.58	Poor	47.5	Non - Poor	Habitat, Siltation, PAHs
SC28	1.50	20	18	Poor	n/a	6.52	Poor	43	Non - Poor	Habitat, Siltation, PAHs



Outsid	Outside of the Lower Salt Creek Watershed									
SC01	2.00	1.1	23	Fair	na	28.5	Fair	72	Non - Fair	
SC02	0.25	0.9	12	Poor	na	18.7	Poor	61	Non - Poor	
SC03	0.50	2.5	17	Poor	na	28.4	Fair	69.25	Non - Fair	
SC04	39.50	6.3	18	Poor	n/a	28.5	Fair	50.5	Non - Poor	Habitat, Siltation, D.O., PAHs
SC05	2.00	2	9.5	Poor	n/a	26.9	Fair	63	Non - Poor	Siltation, Chloride, Ammonia, TKN, PAHs
SC06	4.00	7.7	11	Poor	n/a	22.2	Fair	41.5	Non - Poor	Habitat, Siltation, Chloride, Ammonia, TKN, PAHs
SC07	36.00	16	15	Poor	n/a	29.5	Fair	62.5	Non - Poor	Siltation, D.O., PAHs
SC08	0.25	12.7	17	Poor	n/a	31.4	Fair	53.5	Non - Poor	Habitat, Siltation, Chloride, Ammonia, TKN, PAHs
SC11	5.00	4	17	Poor	n/a	33.6	Fair	61.5	Non - Poor	Siltation, Habitat
SC12	0.25	1.8	20	Poor	n/a	19.6	Poor	71	Non - Poor	Siltation
SC14	2.50	10.46	15	Poor	n/a	32	Fair	82	Non - Poor	Siltation
SC15	32.00	32	18	Poor	6.42	23.5	Fair	60	Non - Poor	Siltation, D.O. , PAHs
SC16	0.25	14.2	20	Poor	n/a	16.1	Poor	47	Non - Poor	Habitat, Siltation, Chloride, TSS, TKN
SC45	1.50	10	17	Poor	n/a	29.1	Fair	64.3	Non - Poor	Habitat, Siltation, Chloride, Ammonia, TKN, PAHs

* MIwb is the Modified Index of Well Being. It is a composite fish index that includes measure of diversity based on abundance and biomass as well as log-weighted factors related to the total biomass and abundance at a site. Range is from 0 to approximately 12.

^ SC34 and SC35 are located within Oak Meadows and were not sampled in 2016 due to the stream restoration construction project ongoing at the time. Data shown are from 2013 prior to construction.



Water Chemistry - Demand Parameters and Nutrients

Salt Creek drains a highly urbanized landscape with a high population density. Pollutants associated with urbanized landscapes, especially heavy metals, hydrocarbons, and road deicing compounds, enter the stream system via stormwater flows. Because heavy metals and hydrocarbons are typically attached to sediment particles, those pollutants accumulate in the bottom sediments. However, de-icing compounds, being soluble, persist mainly in the water column.

The water quality "footprint" resulting from de-icing compounds is most obvious in the small tributaries and especially in the headwater network upstream from Salt Creek's confluence with Spring Brook Creek (at approximately River Mile 24.8) (Figure 42). Summer concentrations of chlorides measured in the headwaters of Salt Creek were elevated to the point that if one were to attempt drinking the water, the taste would be "salty." Chloride concentrations that elevated are anomalous for freshwater systems and are beyond the tolerance of most macroinvertebrates.



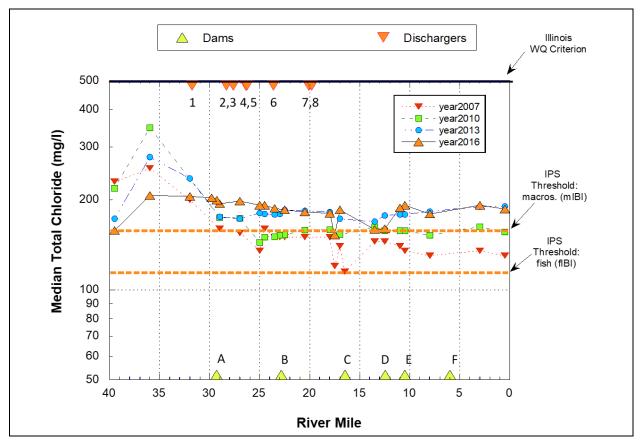


Figure 42. Longitudinal pattern of median summer chloride concentrations in Salt Creek, 2007-2016.

Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTP discharges. The thick black line along the upper X-axis denotes the Illinois water quality standard for chloride (500 mg/L). The orange dashed lines denote the Integrated Priority System (IPS) threshold criteria for fish (112 mg/L) and macroinvertebrates (141 mg/L).

Concentrations of suspended solids were elevated at times, a likely function of the urbanized character of the watershed, algae discharged from stormwater retention ponds, and possibly the dispersive effect of monovalent ions on clayey silts (Figure 43).

Given the high population density in the watershed, treated municipal effluent comprises a significant fraction of the total flow in Salt Creek and strongly influences water quality, especially with respect to phosphorus and nitrogen. Phosphorus concentrations in the headwaters were typical of developed urban landscapes but were not necessarily excessive. However, starting at the first major treatment plant, concentrations became highly elevated, with little or no assimilation occurring along the run-of-river (Figure 44).



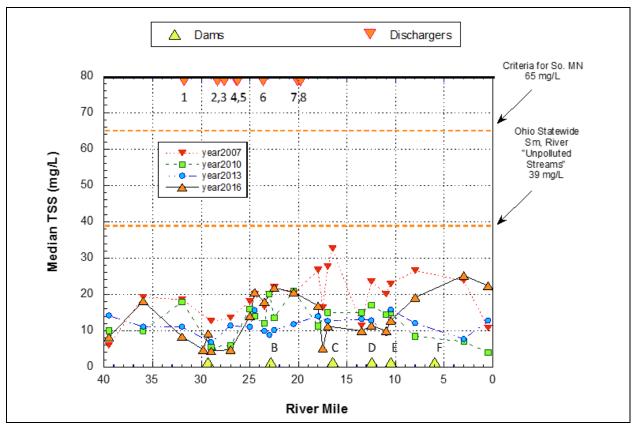


Figure 43. Longitudinal pattern of median TSS concentrations in Salt Creek, 2007-2016.

Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTP discharges. The orange dashed lines denote the criteria for southern Minnisota streams and the Ohio statewide small river "unpolluted" streams.

ID Number	WWTP Dischargers
1	MWRDGC EGAN WRP
2	Itasca STP
3	Wood Dale North STP
4	Wood Dale South STP
5	Addison North STP
6	Addison South - A.J. Larocca STP
7	Salt Creek Sanitary District
8	Elmhurst WWTP
ID Letter	Dams
А	Busse Woods Dam
В	Oak Meadows Dam (removed)
С	Graham Center Dam (Elmhurst Co. Forest Preserve Dam)
D	Old Oak Brook Dam
E	Graue Mill Dam
F	Possum Hollow Woods Dam

Table 41. Key to WWTP dischargers and dams in DRSCW water chemistry figures.



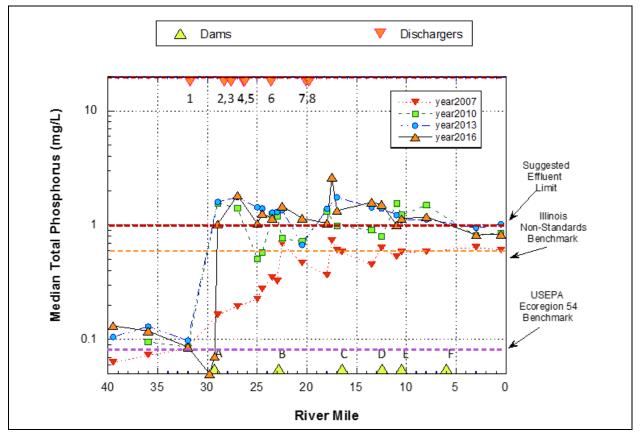


Figure 44. Longitudinal pattern of median total phosphorus (TP) concentrations in Salt Creek, 2007-2016.

Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTP discharges. The purple dashed line denotes the target TP concentration for Ecoregion 54 (0.07 mg/L). The orange dashed line denotes Illinois EPA's non-standard based criterion (0.61 mg/L). The red dashed line denotes the suggested TP effluent limit (1.0 mg/L).

Nitrate+nitrite nitrogen concentrations followed an essentially identical pattern, going from background concentrations (e.g., < 1 mg/L) to highly elevated (e.g., > 3 mg/L) (Figure 45). Total Kjeldahl nitrogen (TKN) also increased downstream from where the treatment discharges began (Figure 46). TKN can signal organic enrichment; however, as a by-product of treated domestic sewage, it can also represent refractory organic nitrogen. Biological oxygen demand (BOD5) did not increase significantly in relation to the WWTP effluents (Figure 47). Ammonia-nitrogen concentrations were influenced by the WWTPs; however, the cluster of combined sewer overflows that discharges to the reach immediately upstream from the Graham Center dam (dam C) appeared to raise the mean concentration above that which is chronically toxic to sensitive aquatic organisms (Figure 48).



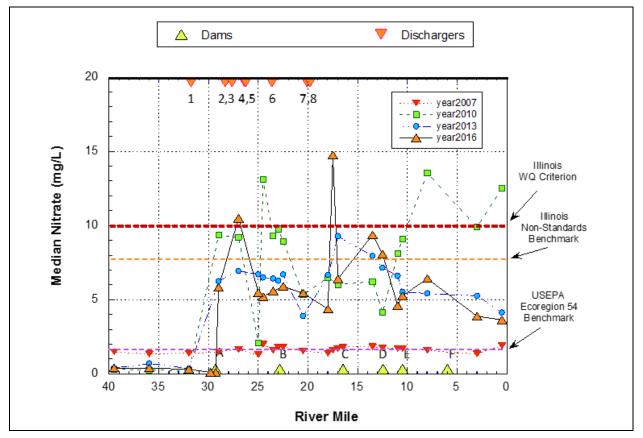


Figure 45. Longitudinal pattern of median nitrate+nitrite nitrogen concentrations in Salt Creek, 2007-2016.

Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTP discharges. The purple dashed line denotes the target nitrate+nitrite concentration for Ecoregion 54 (1.8 mg/L). The orange dashed line denotes Illinois EPA's non-standard based criterion (7.8 mg/L). The red dashed line denotes the Illinois water quality standard for public water supplies (10 mg/L).



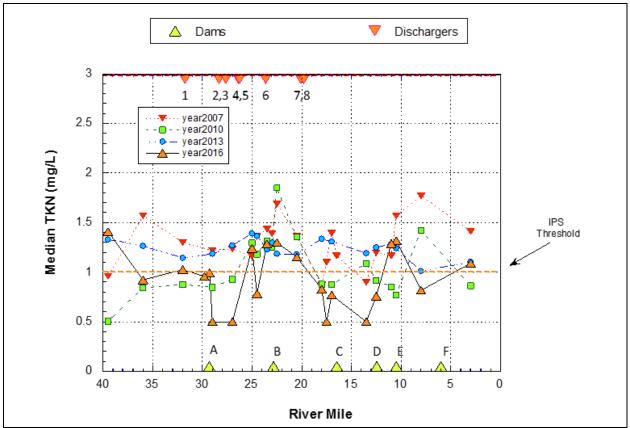


Figure 46. Longitudinal pattern of median TKN concentrations in Salt Creek, 2007-2016.

Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTP discharges. The orange dashed line denotes the Integrated Priority System (IPS) threshold criteria (1 mg/L).



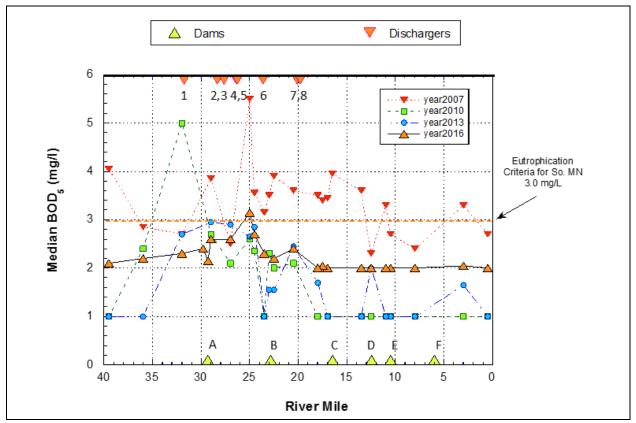


Figure 47. Longitudinal pattern of median BOD5 concentrations from Salt Creek samples, 2007-2016.

Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTP discharges. The orange dashed line denotes the upper limit of concentrations (3 mg/L) typical for relatively unpolluted waters.⁷¹ (McNeeley et al. 1979).

⁷¹ McNeely et al. 1979. Water Quality Sourcebook: A guide to water quality parameters. Environment Canada, Ottawa, Ontario.



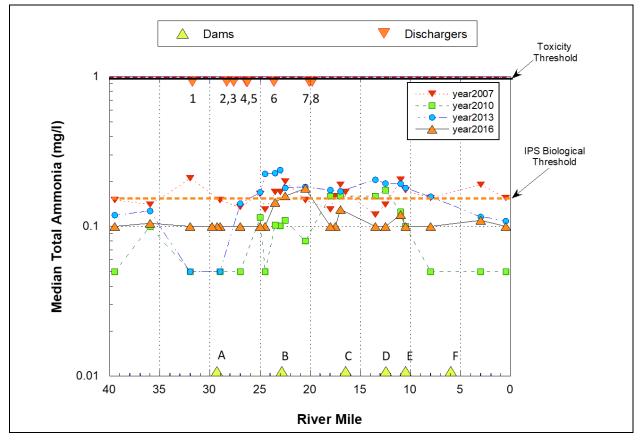


Figure 48. Longitudinal pattern of median ammonia nitrogen concentrations from Salt Creek samples, 2007-2016.

Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTPs. The red dashed line (1 mg/L) represents a threshhold concentration above which acute toxicty is likely. The orange dashed line (0.15 mg/L) is correlated with impaired biota in the IPS study.

For dissolved oxygen (DO), violations of daily minimum water quality standards (3.5 mg/L between August and February and 5.0 mg/L between March and July) as well as rolling average DO criteria were frequent at five (5) of the six (6) monitoring locations.



Water Chemistry - Organics

Water samples were collected at 23 sites in the Salt Creek watershed during 2016 for an organic scan of 91 compounds including organochlorine pesticides, polycyclic aromatic hydrocarbons (PAHs), and hydrocarbons commonly employed in manufacturing such as benzene and toluene. Detections, where they occurred, were found in low concentrations and were mostly for compounds related to byproducts of drinking water chlorination (e.g., chloroform, bromodichloromethane).

Sediment Chemistry

Sediment samples were collected from 23 sites in the Salt Creek watershed during the 2016 survey, and analyzed for heavy metals and a variety of organic compounds including PAHs, organochlorine pesticides, polychlorinated biphenyls (PCBs), and organics commonly employed in industry (e.g., acetone, toluene). Metals and PAHs were routinely detected at all locations, though concentrations of metals rarely exceeded levels likely to adversely impact aquatic life. Concentrations of PAHs, however, frequently exceeded levels likely to affect aquatic life. Sources of metals in the urban environment include buildings, especially galvanized roofs, and automobiles. PAHs are the by-product of incomplete gasoline combustion and tend to build-up on road surfaces. Coal tar based blacktop sealants are another documented source of PAHs.

Fish Surveys

Fish assemblages in Salt Creek were in poor to fair condition throughout the mainstem. The two sites immediately downstream from the Graue Mill Dam (Dam E) performed the best, where the fish community scored an fIBI of 25, likely owing to the ameliorative effect from reaeration imparted by the splash pool downstream of the dam's spillway. The Graue Mill Dam is a barrier to several fish species, notably johnny darters and hornyhead chubs, two species that should be found throughout most of the mainstem. The longitudinal pattern of fIBI scores along the length of the mainstem in 2007, 2010, 2013, and 2016 is depicted in Figure 49. Scores in tributaries throughout the watershed in 2016 were in the poor to fair range. Figure 50 depicts the resource quality (i.e., poor, fair, or good) as indicated by the fIBI scores (reference Table 36) at the DRSCW monitoring sites sampled in the Lower Salt Creek watershed in 2016.

Fish assemblages in the Salt Creek watershed are limited by stormwater pollutants, episodically low DO concentrations, and poor and fragmented habitat. Episodically low dissolved oxygen concentrations are driven by organic enrichment. The source of the organic enrichment is both direct, from CSOs and stormwater runoff, as well as indirect from algae cooked-up in stormwater ponds and behind low head dams. Low DO concentrations, apart from being directly lethal or stressful, also result in denitrification of nitrate to nitrite. Nitrite is highly toxic to aquatic organisms.



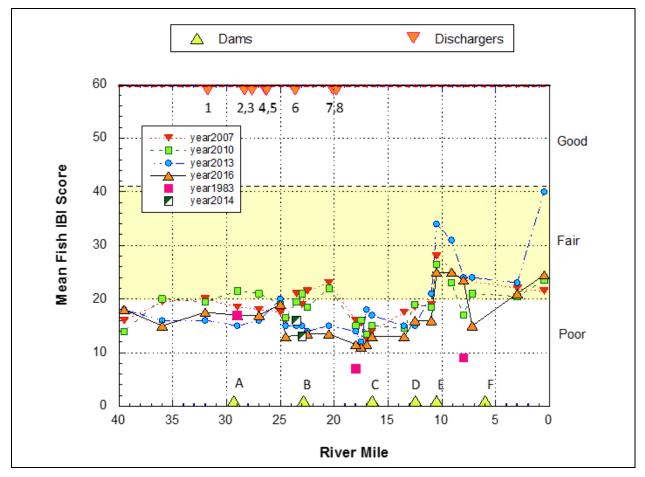


Figure 49. Longitudinal pattern of fish IBI scores in Salt Creek, 1983-2016.

Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTP discharges. The yellow-shaded region demarks the fIBI score range (20-41) indicating "fair" stream quality in terms of aquatic life use support, An fIBI score below 20 indicates poor stream quality, and an fIBI score greater than 41 indicates good stream quality.



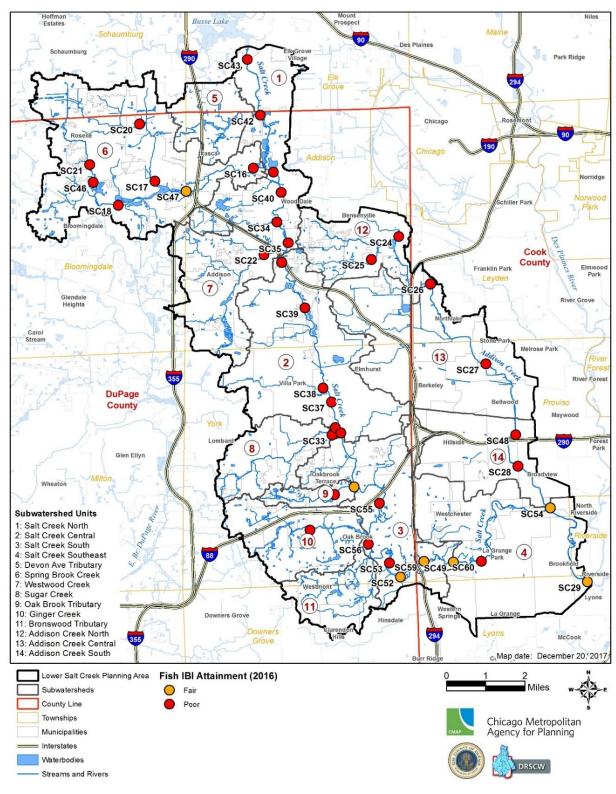
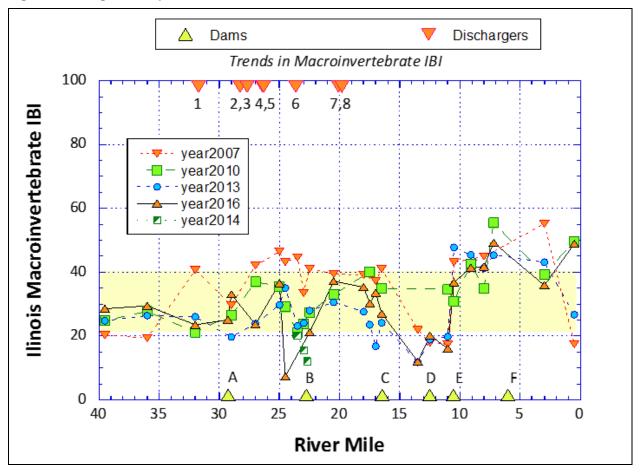


Figure 50. Resource quality as indicated by fish IBI scores at DRSCW monitoring sites in the Lower Salt Creek watershed, 2016.



Macroinvertebrate Surveys

Macroinvertebrate communities sampled from the mainstem of Salt Creek revealed no clear longitudinal pattern (Figure 51). Communities were rated as fair upstream from the Graue Mill Dam and rated as good at three of six sites sampled downstream from the dam (and fair at the other three sites). Scores in tributaries throughout the watershed in 2016 were in the poor to fair range. Figure 52 depicts the resource quality (i.e., poor, fair, or good) as indicated by the mIBI scores (reference Table 36) at the DRSCW monitoring sites sampled in the Lower Salt Creek watershed in 2016.





Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTP discharges. The yellow-shaded region demarks the mIBI score range (20.9-41.8) indicating "fair" stream quality in terms of aquatic life use support. An mIBI score below 20.9 indicates poor stream quality, and an mIBI score greater than 41.8 indicates good stream quality.



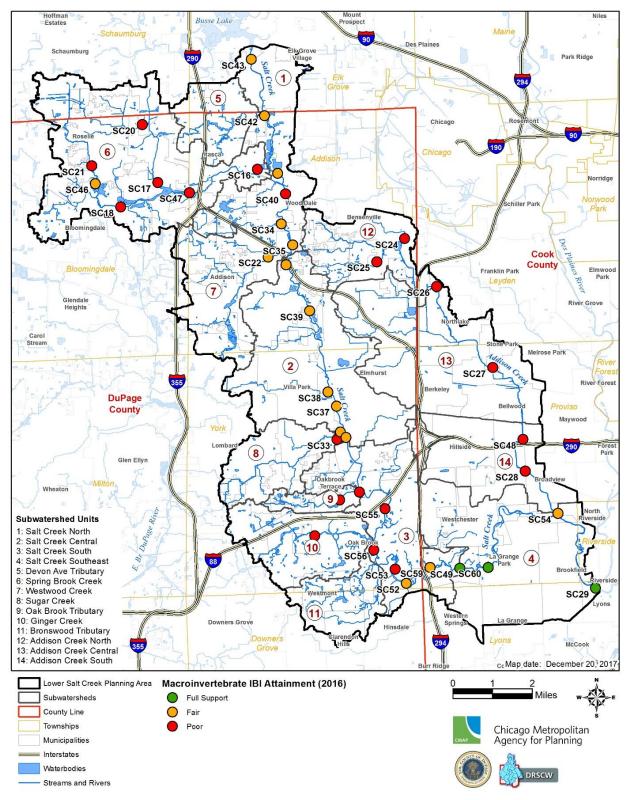


Figure 52. Stream quality as indicated by mIBI scores at DRSCW monitoring sites in the Lower Salt Creek watershed, 2016.



Physical Habitat Quality for Aquatic Life

The physical habitat of a stream is a strong determinant of biological quality. Streams in the glaciated Midwest, left in their natural state, typically possess riffle-pool-run sequences, high sinuosity, and well-developed channels with deep pools, heterogeneous substrates and cover in the form of woody debris, glacial tills, and aquatic macrophytes.⁷² The Qualitative Habitat Evaluation Index (QHEI) categorically scores the basic components of stream habitat into ranks according to the degree to which those components are found in a natural state, or conversely, in an altered or modified state. QHEI is a composite score of substrate, instream vegetation, channel morphology, riparian zone and bank erosion, glide and riffle/run quality, and gradient.

Physical habitat was evaluated using QHEI at 21 sites along the Salt Creek mainstem in 2016. Most of the sites possessed the types and amounts of habitat features necessary to support aquatic life consistent with beneficial uses, with QHEI scores averaging 63.7 (Figure 53). Perhaps more telling is that a majority of the sites possessed none of the attributes associated with stream channels that have been highly modified either directly or indirectly by anthropogenic modifications. Highly modified attributes are especially damaging to aquatic life, and a finding of two or more at a given site typically precludes a balanced macroinvertebrate and fish assemblage. Additionally, the total number of all modified attributes relative to the total number of natural attributes at any given site did not overwhelm the ability of the site to support aquatic life, except in the pools behind the low-head dams. QHEI scores obtained in 2016 were similar to those obtained during previous bioassessments in 2007, 2010, and 2013.

Habitat quality measured in the tributaries of Salt Creek varied considerably from site-to-site and by tributary (Figure 54). The Spring Brook Creek subwatershed has good habitat quality at four (4) sites situated along the mainstem of Spring Brook Creek. The other two sites within the Spring Brook Creek subwatershed are located on Meacham Creek and have two of the lowest QHEI scores in the entire Lower Salt Creek watershed. Westwood, Sugar, Oak Brook, and Ginger Creeks are noted for low sinuosity which is a function of historical channelization. Addison Creek is, overall, the most modified tributary in the Salt Creek watershed with QHEI scores averaging 50.6, and one or more highly modified attributes were found at each site.

⁷² Rankin, E.T. and B.J. Armitage. 2004. Protection, restoration, and aquatic life potential in Nature Conservancy Areas in the agricultural Midwest: French Creek (New York), St. Joseph River and Fish Creek (Indiana, Michigan and Ohio), and Mackinaw River (Illinois). Kellogg Research Report. 53 pp.



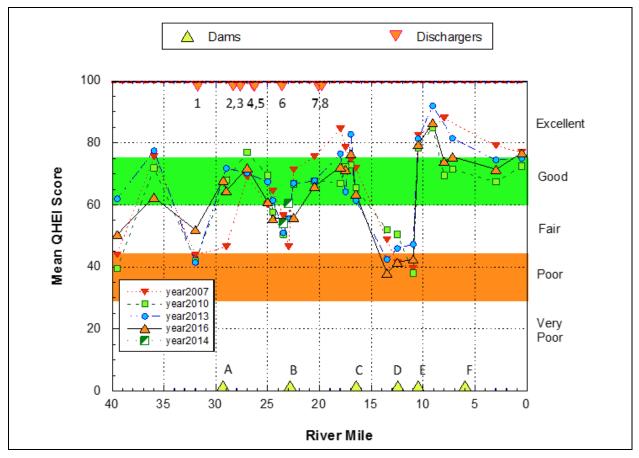


Figure 53. Longitudinal pattern of QHEI scores in Salt Creek, 2007-2016.

Notes: Yellow triangles along the bottom X axis depict mainstem dams. Red triangles along the upper X axis depict WWTP discharges. The green-shaded region demarks the "good" habitat quality range and the orange-shaded region demarks the "poor" habitat quality range.



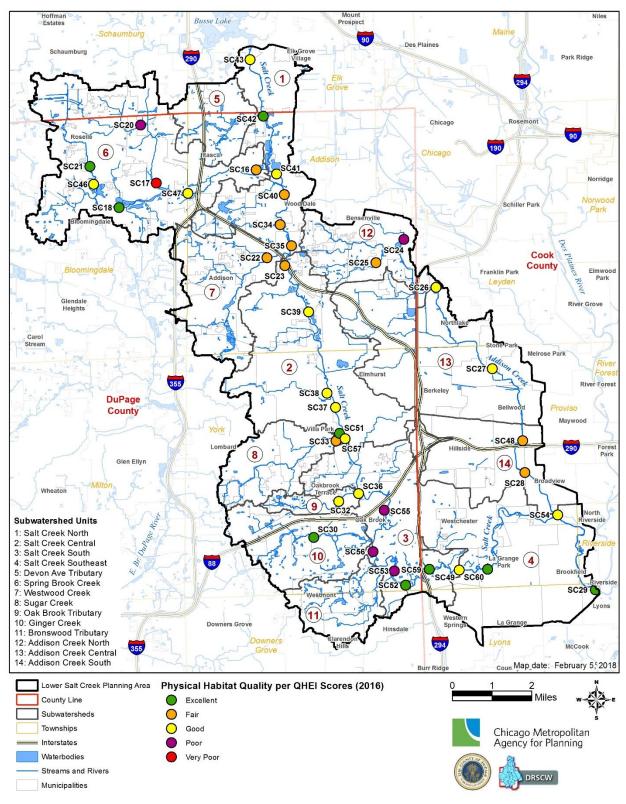


Figure 54. Stream physical habitat quality as indicated by QHEI scores at DRSCW monitoring sites in the Lower Salt Creek watershed, 2016.



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3.5.6.3 Sierra Club Stream Monitoring

The Sierra Club chapter in DuPage County, the River Prairie Group, has monitored water quality in Salt Creek (as well as the East and West Branches of the DuPage River) as part of Sierra Club's national Water Sentinels project since 2000. Volunteers record water temperature and collect samples regularly at two locations in Salt Creek: at the Prairie Path Bridge and Eldridge Park, both in Elmhurst. Water samples are analyzed for phosphorus, nitrates, ammonia, and chlorides. The data can be viewed and downloaded from their website (https://www.sierraclub.org/illinois/river-prairie/river-monitoring-excel-data).

3.5.6.4 Lake Charles

Lake Location, Ownership, Use, and Morphometry

This manmade lake is located in DuPage County in the southwest portion of the Lower Salt Creek Watershed, in about the center of the Bronswood Tributary subwatershed (subwatershed/study unit #11) on the north edge of Westmont, Illinois. It serves as the stormwater detention facility for the 459-single family home Oakwood subdivision and some surrounding areas.⁷³ The lake is used recreationally for fishing, non-power boating, and wildlife viewing by Oakwood residents and invited guests. The lake is owned and managed by the Oakwood Homeowners Association (HOA). Lake morphometric information is provided in Table 42.

Illinois EPA lake code	IL_RGR
Surface Area ^a	14.0 acres
Maximum Depth ^b	20.3 feet
Average Depth ^b	6.3 feet
Volume ^c	88 acre-feet
Shoreline Length ^a	4432 feet, 0.84 miles
Lake Elevation ^d	NWL = 718.0, HWL = 721.0
Lake Type	Dug

Table 42. Lake Charles morphometric information.

Key:

a) determined using 2014 aerial imagery and CMAP's GIS system

b) from Lake Charles Survey Report⁷⁴

- c) surface area x average depth
- d) from Village of Westmont 2008 storm sewer map

⁷⁴ Illinois DNR, Div. of Fisheries. 2007. Lake Charles Private/Organizational Lake Survey Report.

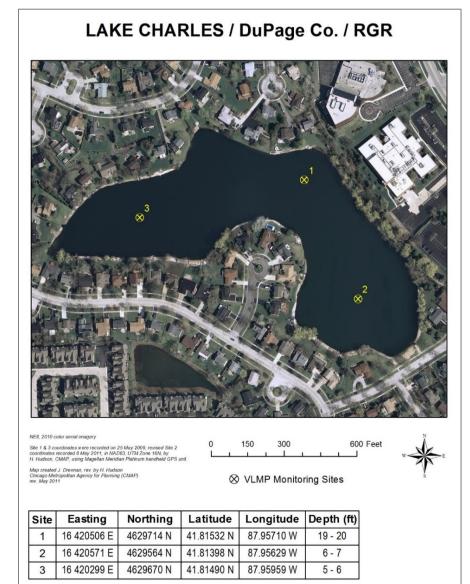


⁷³ <u>http://www.oakwoodha.org/lake-charles.html</u>

Current Water Quality Conditions

Lake Charles has been consistently monitored as part of the Illinois Volunteer Lake Monitoring Program (VLMP) every year from 2000 to the present (2017). Secchi transparency is recorded at three in-lake monitoring sites (Figure 55). The annual average, minimum, and maximum Secchi transparency values from 2000 through 2017 at Site 1, located in the deepest area of the lake and thus considered the representative site, are shown in Figure 56. Seasonal variation in Secchi transparency readings at Site 1 for the three most recent years (2015-2017) are shown in Figure 57.⁷⁵

Figure 55. Water quality monitoring sites in Lake Charles.



⁷⁵ Graphs downloaded from <u>http://dataservices.epa.illinois.gov/waBowSurfaceWater/anonymous/data.aspx</u>



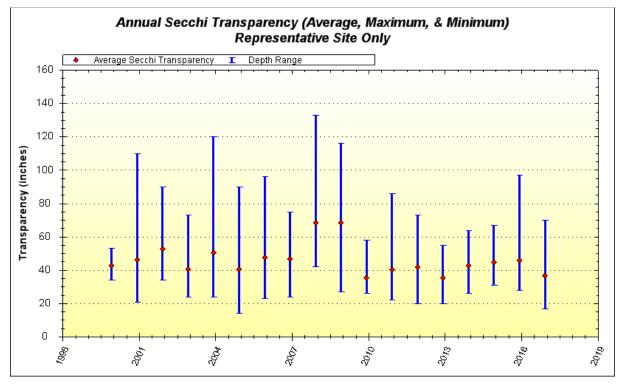
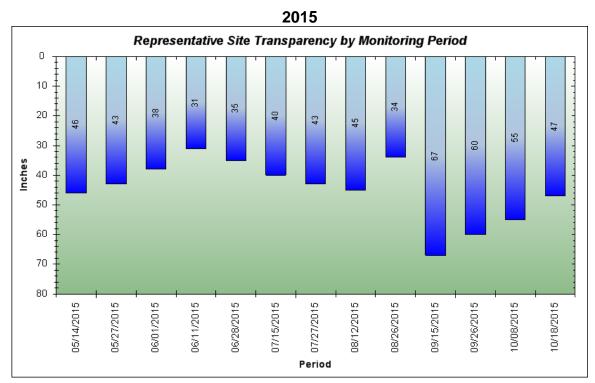
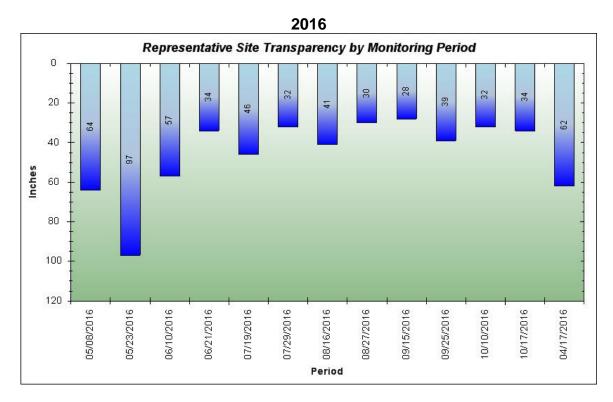


Figure 56. Lake Charles annual average, maximum, and minimum Secchi transparency, Site 1, 2000-2017.

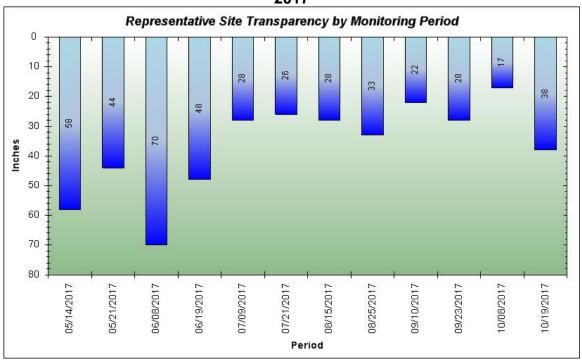
Figure 57. Lake Charles seasonal Secchi transparency, Site 1, 2015, 2016, and 2017.







2017





Chicago Metropolitan Agency for Planning Water samples have been collected by VLMP participants for several years. Samples are analyzed at Illinois EPA's Springfield laboratory. The three most recent year's Site 1 data is summarized in Table 43. Lake Charles exhibits degraded water quality with high total phosphorus (TP) (Illinois' water quality standard for TP is 0.050 mg/L) and suspended solids concentrations typical of a waterbody within a developed setting receiving stormwater runoff. On a positive note, it appears that chloride concentrations are declining, perhaps associated with modifications to wintertime road deicing practices.

IEPA lake code	IL_RTZD					
Year		2015	2016		2017	
		Site 1	Sit	te 1	Site 1	
Parameter	Units	near surface	near surface	near bottom	near surface	near bottom
Secchi transparency	inches	45	46		3	7
Total Phosphorus (TP)	mg/L	0.151	0.108	0.143	0.130	0.145
Nitrite + Nitrate Nitrogen (NO2+NO3)	mg/L	0.032*	0.039*	0.029*	0.025*	0.022*
Ammonia Nitrogen (NH3)	mg/L	0.066*	0.023*	0.150*	0.020*	0.228
Total Kjeldahl Nitrogen (TKN)	mg/L	1.13	1.07	1.34	1.49	1.50
Total Suspended Solids (TSS)	mg/L	14	11*	9	17	13
Volatile Suspended Solids (VSS)	mg/L	12	9*	8	13	8
Chloride (Cl)	mg/L	212	145	144	127	124
Alkalinity	mg/L	110	116	119	107	109
Chlorophyll <i>a</i> (corrected)	μg/L		45.6		71.9	
Chlorophyll b	μg/L		2.63		0.96	
Chlorophyll c	μg/L		5.98		7.19	

Table 43. Average annual water quality characteristics for Lake Charles, Site 1, 2015-2017.

*at least one sample below the method detection limit

Aquatic Plants

Submersed (underwater) aquatic plants observed by the VLMP monitors include horned pondweed (*Zannichellia palustris*), sago pondweed (*Stukenia pectinata*), leafy pondweed (*Potamogeton foliosus*), and curlyleaf pondweed (*Potamogeton crispus* – a nonnative, invasive species) as well as the macroalgae *Chara*. Several emergent plant species were planted years ago along the northeast shore, and several beds of pickerel plant (*Pontederia cordata*) and water willow (*Justicia americana*) persist to date, along with blue flag iris (*Iris versicolor*), bur-reed (*Sparganium* spp.) and bulrush (*Scirpus* spp.). Additionally, bulrushes (*Scirpus* spp.), spike rushes (*Elocharis* spp.), cattails (*Typha* spp.), and purple loosestrife (*Lythrum salicaria* – a nonnative, invasive species) are present at various spots around the lakeshore.

Fisheries

A fish population survey was conducted by Illinois DNR fisheries biologists in July 2006 following a request by the HOA. A substantial fish kill had occurred during summer 2005. Thirty minutes of daytime boat electrofishing indicated a fish community dominated by sunfish



(*Lepomis* spp. – bluegill, green sunfish, and blue gill x green sunfish hybrid) and largemouth bass (*Micropterus salmoides*), but numbers and stock densities were not in optimal ranges. Also collected were a few golden shiners, two black crappies, and one black bullhead. Five large grass carp were seen but not collected.

IDNR recommended stocking additional largemouth bass until natural reproduction improved, considering stocking channel catfish to diversify the fishery and increase predation on small bluegill, adding fish attractors to increase cover for young fish and surface areas for macroinvertebrates, establishing submersed aquatic vegetation to occupy about 20% of the lake area, installing an aeration system to reduce the chance for summer fishkills, changing the type of aquatic herbicide used to control filamentous algae, and reducing nutrient input from lawn fertilizers.⁷⁶

Lake Management

Lake management actions include filamentous and planktonic algae control utilizing aquatic herbicides and dyes, invasive species management targeting curlyleaf pondweed and purple loosestrife, a diffused air aeration system (installed circa 2007), and fish stocking.

Lakeshore Buffer Condition

Lake Charles' riparian (lakeshore) buffer zone was assessed by CMAP staff using a qualitative methodology that considered an area up to 25 feet inland from the shoreline and for a width of a coded segment, typically bounded by a lot or parcel boundary. A 25 foot buffer was chosen based on research that indicates a 25-foot vegetated buffer is the minimum effective width for in-lake habitat maintenance (a 15 foot buffer is considered the minimum effective width for bank stability).⁷⁷ The following land cover categories were estimated for each parcel segment: turfgrass lawn, flower beds, unmowed grasses & forbs, tree trunks, shrubs, beach, impervious surface. Criteria used for category assignment are presented in Table 44. Field assessment was conducted by boat and foot during October and November 2016; the results are presented in Table 45, Figure 58, and Appendix C.

⁷⁷ State of Vermont Agency of Natural Resources: Department of Environmental Conservation, *Shore Vegetation and Buffers*, <u>http://www.vtwaterquality.org/lakes/htm/lp_shorevegandbuffers.htm</u> (accessed September 2014) and State of Vermont Agency of Natural Resources: Department of Environmental Conservation, *Shoreland Buffer Widths*, <u>http://www.watershedmanagement.vt.gov/lakes/docs/lp_shorelandbufferwidths.pdf</u> (accessed September 2014)



⁷⁶ Illinois DNR, Div. of Fisheries. 2007. Lake Charles Private/Organizational Lake Survey Report.

Category	Criteria	
Very Good	Unmowed grasses & forbs + Tree trunks + Shrubs and	≥ 90%
	Impervious surface	≤10%
	Unmowed grasses & forbs + Tree trunks + Shrubs	\geq 70% and < 90%
Good	and	
	Impervious surface	≤ 30%
	Unmowed grasses & forbs + Tree trunks + Shrubs	\geq 50% and < 70%
Fair	and	
	Impervious surface	≤ 50%
	Turfgrass lawn + Flower beds + Beach +	< 50%
Poor	and	
	Impervious surface	> 50%

 Table 44. Criteria used for categorizing riparian buffer condition.

Table 45. Lake Charles riparian buffer assessment summary.

Category	Shoreline Length (ft)	Percent	
Very Good	0	0%	
Good	789	17.8%	
Fair	0	0%	
Poor	3,643	82.2%	
Totals	4,432	100%	



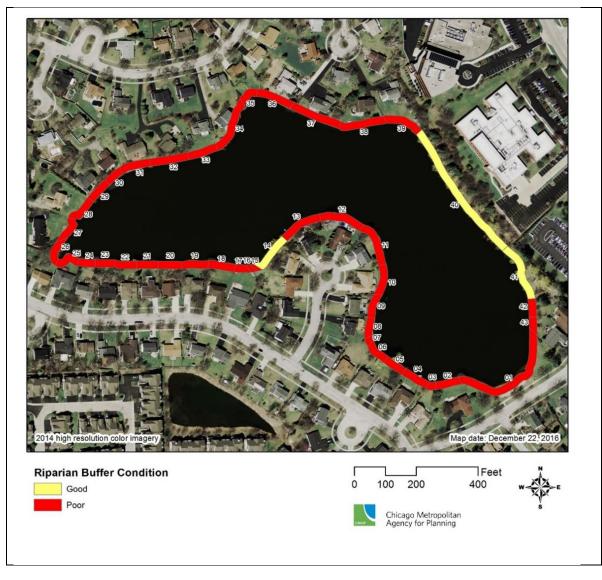


Figure 58. Lake Charles riparian buffer assessment, 2016.

Shoreline Erosion Assessment

Lake Charles shoreline erosion condition was assessed by CMAP staff during October 2016 via observation from a rowboat. Each segment was the same as used for the lakeshore buffer assessment, typically the width of a lot or parcel. The criteria used for assigning erosion categories were as follows:

- None: no erosion evident; these segments typically had a concrete or steel seawall
- Minimal: minor erosion; some bare soil areas evident; considered generally stable
- Slight: low erosion; approximately 3-6" bank heights
- Moderate: approximately 6-12" bank heights; sloughing, undercutting, or ice heave often evident
- High: approximately 12-24" bank heights; sloughing, undercutting, or ice heave often evident



The results of the assessment are presented in Table 46, Figure 59, and Appendix C. An estimate of pollutant loads from shoreline erosion was made using the "impaired streambank dimensions" input table in the Gully and Streambank Erosion sheet in the STEPL model.

Erosion Level	Shoreline Length (ft)	Percent	Nitrogen Load (lb/yr)	Phosphorus Load (lb/yr)	BOD Load (lb/yr)	Sediment Load (ton/yr)
None	2,206	49.8%				
Minimal	642	14.5%	0.3	0.1	0.7	0.2
Slight	1,037	23.4%	1.1	0.4	2.1	0.6
Moderate	196	4.4%	2.1	0.8	4.2	1.1
High	351	7.9%	31.7	12.2	63.3	17.2
Totals	4,432	100%	35.1	13.5	70.3	19.1

 Table 46. Lake Charles shoreline erosion assessment and pollutant load estimate summary.



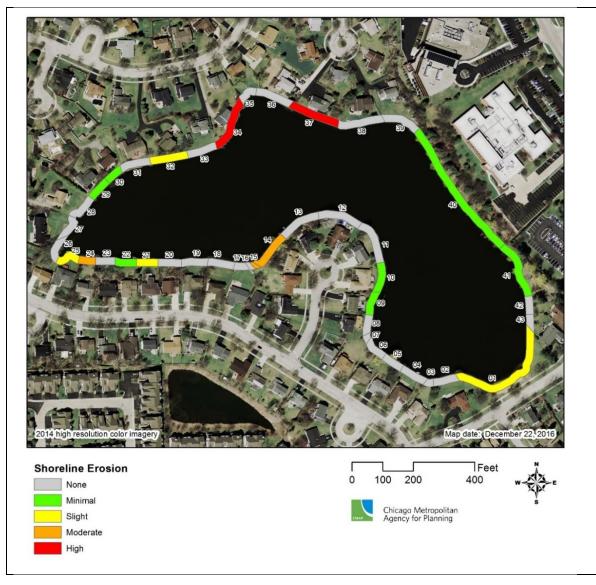


Figure 59. Lake Charles shoreline erosion assessment, 2016.

3.5.6.5 Swan Lake

Lake Location, Ownership, Use, and Morphometry

Swan Lake (formerly Indian Lake) is located within the Brookfield Zoo in western Cook County, near the eastern boundary of the Salt Creek Southeast subwatershed (subwatershed/ study unit #4). The lake was created in 1927 by the excavation of a lowland area adjacent to Salt Creek. It was drained and re-excavated over the winter of 1974-75. At that time, two islands were added (the South Island and Middle Island) and the two northern islands were joined and enlarged into one (the North Island) to enhance resting and nesting areas for the collection waterfowl.



Owned by the Forest Preserve District of Cook County, the lake is managed by the Chicago Zoological Society – Brookfield Zoo. Today, the lake provides an aesthetic setting, wildlife viewing, and fish stock for other Forest Preserve lakes.

Morphometric information and a bathymetric map from that study are provided in Table 47 and Figure 60, respectively.

Illinois EPA lake code	IL_WGZY
Surface Area	4.03 acres
Maximum Depth	12.7 feet
Average Depth	6.9 feet
Volume	26.4 acre-feet
Avg. Water Residence Time	2.4 years
Shoreline Length	2,832 feet, 0.54 miles (incl. islands)
Lake Elevation	610.09 feet above mean sea level (2.2 feet on the lake's staff gage)
Lake Type	Excavated lowland
Watershed Area	7.78 acres

 Table 47. Swan Lake morphometric information.

Clean Lakes Program Phase 1 Study and Phase 2 Implementation Overview

Swan Lake was the subject of a detailed U.S. EPA Section 314 Clean Lakes Program Phase 1 Diagnostic/ Feasibility Study in the mid-1990s to identify and quantify water quality problems and other factors effecting the lake's ecological and aesthetic qualities, and to outline technically and financially feasible rehabilitation measures⁷⁸. Lake quality and cultural use problems identified during the Phase 1 Study included fluctuating water levels; nuisance levels of algae; unbalanced/unstable fishery with partial to total fishkills; low species diversity of plant communities in open water, shoreline, and shoreland zones; and lack of adequate scientific data to guide long-term management decisions.

⁷⁸ Kirschner, R.J., H.L. Hudson, M.M. Murphy, and T.H. Price. 1997. Phase 1 Diagnostic/Feasibility Study of Indian Lake, Brookfield Zoo, Cook County, Illinois. Prepared by Northeastern Illinois Planning Commission, Chicago.



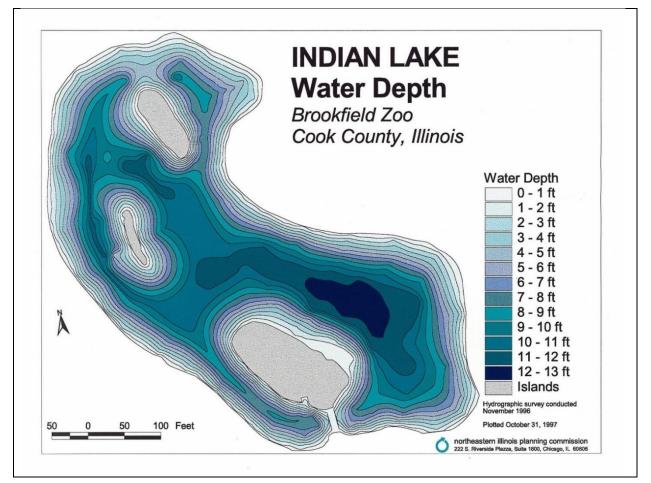
Following the Phase 1 Study's completion in December 1997, the Zoo began implementing numerous recommendations from the Study with the help of an Illinois Clean Lakes Program Phase 2 Implementation matching grant from the Illinois EPA, awarded in April 1998. Key actions included the following:

- lowering the lake water target elevation and utilizing a mix of groundwater supply and Lake Michigan water supply to maintain lake levels as needed;
- reducing stormwater runoff from adjacent animal exhibits;
- discouraging overabundant non-collection waterfowl;
- recirculating lake water through Dragonfly Marsh, a 1-acre demonstration wetland complex constructed in 1999 adjacent to the north end of the lake;
- installing an aeration system to maintain destratification and mixing of the lake during the growing season (the system consisted of four air diffuser lines totaling 2,200 feet and two rotary screw air compressors, each with a 10 HP motor);
- applying alum as a phosphorus precipitator/inactivator (goal was to precipitate at least 90 percent of the phosphorus from the water column and "seal" bottom sediments to minimize future phosphorus release; the application was conducted in Nov. 1998);
- increasing the amount of aquatic habitat structure (e.g., submersed, floating-leaved, and emergent aquatic plants, fallen trees) for fish, turtles, frogs, and invertebrates;
- developing and implementing a fish stocking and monitoring strategy with the FPD of Cook County fisheries biologists;
- planting submergent and floating-leaved aquatic vegetation in the lake and emergent vegetation along the shoreline;
- controlling erosion from targeted shoreline areas by establishing emergent vegetation, and in adjacent shoreland areas by controlling invasive vegetation and managing for native understory vegetation;
- establishing a wetland vegetation area contiguous to the lake to add shallow water habitat and visitor viewing benefits at the lake's south end;
- developing a public education program relating to lake management and stewardship;
- continuing to monitor water quality; and
- developing a record-keeping protocol for all lake-related information.

By the end of the grant in 2001, several positive outcomes were realized: The alum application immediately resulted in clear water (with Secchi readings to the lake bottom) and a reduction in mean summer total phosphorus from pre-project levels of 1.54 mg/L in 1998 to 0.026 mg/L in 1999 and 0.052 mg/L in 2000. The aeration system maintained destratification and helped to maintain adequate dissolved oxygen levels throughout the water column. Upland stormwater runoff and erosion control practices were implemented. Protocols to maintain a lower target water level were established. Spatterdock (*Nuphar advena*) was established along the south end of the south island, and several species of submersed vegetation began to thrive in association with improved water clarity. Public education actions included installation around the lake of a variety of signs with a focus on water and water quality, publishing of a brochure addressing nonpoint source pollution and watershed health, workshops for teachers, and field trips for students. A lake water quality monitoring program continued (including annual participation



in the VLMP and continuous monitoring of dissolved oxygen during the growing season) and record keeping protocols were established. On the other hand, limited success was seen with establishment of emergent vegetation along the shoreline (shading, poor soil conditions, predation) and in the contiguous constructed wetland (excavated too deep). The aeration system compressors proved costly to maintain and the distribution hoses intended for future alum applications were prone to clogging, and thus the system was replaced in 2003.⁷⁹





⁷⁹ Bodwell, A., K. Semmen, P. Shreve, and H. Hudson. 2001. Phase 2 Implementation Project: Indian Lake at Brookfield Zoo, Brookfield, Illinois. Prepared by Brookfield Zoo, Brookfield, IL, and Northeastern Illinois Planning Commission, Chicago.



Current Water Quality Conditions

Swan Lake has been consistently monitored as part of the Illinois Volunteer Lake Monitoring Program (VLMP) every year from 1998 to the present (2017). Secchi transparency is recorded at two in-lake monitoring sites (Figure 61). The annual average, minimum, and maximum Secchi transparency values from 1995 through 2017 at Site 1, located in the deepest area of the lake and thus considered the representative site, are shown in Figure 62. Seasonal variation in Secchi transparency readings at Site 1 for the three most recent years (2015-2017) are shown in Figure 63⁸⁰. One can see that from 1999 through 2002, following the November 1998 alum application, average Secchi transparency increased from about 100 to 140 inches. In 2003-2004, average transparency declined, although maximum transparency remained on par with the previous years. However, a period of generally low transparency followed from 2005-2010, with average annual clarity of about 30-50 inches. Since then, average clarity has remained in the 40-70 inch range, with maximums reaching post-alum application levels (Secchi seen on the lake bottom in 12-13 foot water depths) during the spring.

⁸⁰ Graphs downloaded from <u>http://dataservices.epa.illinois.gov/waBowSurfaceWater/anonymous/data.aspx</u>





Figure 61. Water quality monitoring sites in Swan Lake.



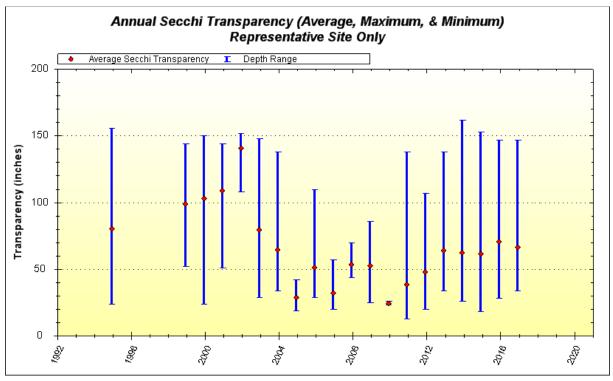
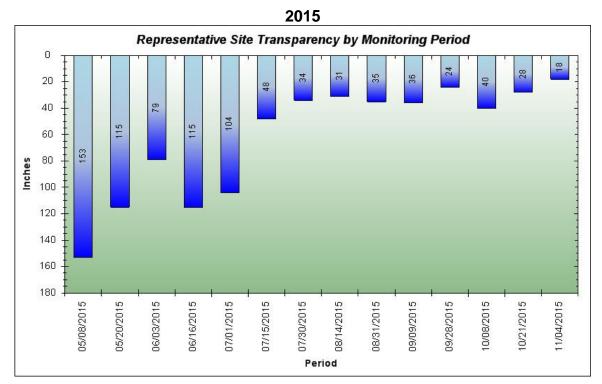


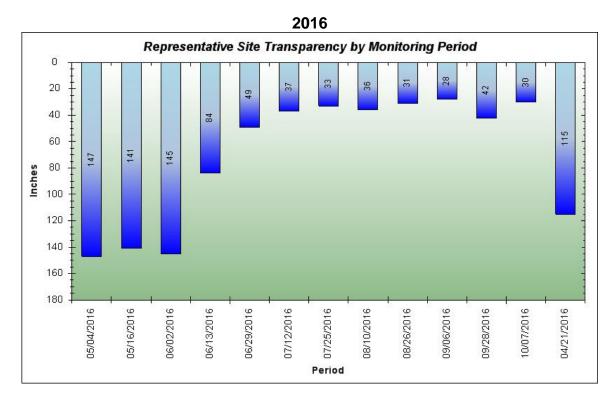
Figure 62. Swan Lake annual average, maximum, and minimum Secchi transparency, Site 1, 1995-2017.

Figure 63. Swan Lake seasonal Secchi transparency, Site 1, 2015, 2016, and 2017.

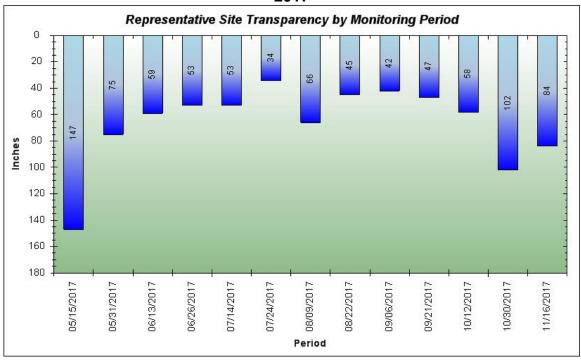




Chicago Metropolitan Agency for Planning



2017





Chicago Metropolitan Agency for Planning Water samples have been collected for several years by Zoo staff participating in the VLMP. Samples are analyzed at Illinois EPA's Springfield laboratory. The three most recent year's Site 1 data is summarized in Table 48. Swan Lake exhibits very high total phosphorus (TP) (Illinois' water quality standard for TP is 0.050 mg/L) and elevated total nitrogen concentrations indicating a highly eutrophic and productive system. In fact, summer blooms of cyanobacteria (blue-green algae) have been documented each of the past few years. On a positive note, suspended solids and chloride concentrations are very low, likely associated with the lake's small contributing watershed and ongoing practices to minimize erosion and runoff from contributing areas.

IEPA lake code	IL_WGZY						
Year		2015	2016		2017		
		Site 1	Site 1		Site 1		
Parameter	Units	near surface	near surface	near bottom	near surface	near bottom	
Secchi transparency (May-Oct.)	inches	65	67		6	65	
Total Phosphorus (TP)	mg/L	0.770	0.775	0.832	0.732	0.732	
Nitrite + Nitrate Nitrogen (NO2+NO3)	mg/L	0.044*	0.097*	0.094*	0.060*	0.059*	
Ammonia Nitrogen (NH3)	mg/L	0.181*	0.315*	0.426*	0.218*	0.248	
Total Kjeldahl Nitrogen (TKN)	mg/L	1.08	1.52	1.62	1.36	1.35	
TN:TP ratio (range)		1–2:1	1–3:1	1–3:1	1–5:1	2-4:1	
Total Suspended Solids (TSS)	mg/L	5	6	5	6	6	
Volatile Suspended Solids (VSS)	mg/L	8	5	5	6	6	
Chloride (Cl)	mg/L	38	33	33	38	38	
Alkalinity	mg/L	200	196	200	219	219	
Chlorophyll <i>a</i> (corrected)	μg/L		28.1		38.6		
Chlorophyll b	μg/L		0.34*		0.47*		
Chlorophyll c	µg/L		5.22*		2.97		

Table 48. Average annual water quality characteristics for Swan Lake, Site 1, 2015-2017.

*at least one sample below the method detection limit

Aquatic Plants

Submersed (underwater) aquatic plants documented by the VLMP monitors include small pondweed (*Potamogeton pusillus*) and muskgrass (*Chara spp.*), a macroalgae. Floating leaved aquatic plants were spatterdock (*Nuphar advena*), duckweed (*Lemna* spp.), and watermeal (*Wolffia* spp.). The spatterdock was established around the south end of the south island during the Phase 2 implementation project and remained until after an August 2016 fluridone application was conducted targeting extensive duckweed and watermeal.

Fisheries

A fish population survey was last conducted by Forest Preserve District of Cook County fisheries biologists in October 2002. Thirty-five minutes of electro fishing the shoreline and a 250-foot experimental gill net set for four hours revealed a population comprised entirely of



largemouth bass (*Micropterus salmoides*) and bluegill (*Lepomis macrochirus*). There were high numbers of young bass in poor condition and low numbers of adults in better condition, associated with the deficiency of bluegill and other fish for forage. The bluegill population was unbalanced, represented by large individuals and no small fish, indicating that the population was being suppressed by largemouth bass predation. In order to address the unbalanced fish population, the biologists recommended increasing the number of bluegill or introducing another forage species such as golden shiner or fathead minnow.⁸¹

Subsequent fish population management actions were undertaken in 2003 and 2005. In 2003, the District biologists collected 101 largemouth bass (6-8 inches) from the lake and transferred them to Joe's Pond.⁸² In 2005, 1000 largemouth bass were collected – 400 by the District and 600 by Zoo staff – and transferred to a rearing pond in Orland Park. The Zoo then added five, 5-gallon buckets of fathead minnows as forage for the remaining bass.⁸³

Lake Management

A diffused aeration system has been operated throughout each growing season since the initial system was installed as part of the Illinois Clean Lakes Program Phase 2 Implementation project in 1998 in order to keep the water column mixed to help maintain adequate dissolved oxygen concentrations. That system was replaced in 2003 with two, 2 HP rotary vane compressors and a network of 11 diffuser plates connected to a manifold system with weighted hose. Eight diffusers around the lake are operated May through November; three diffusers on the west side of the lake are operated November through April to keep a small area ice-free for native waterfowl and improve gas exchange for the fishery. An oxygen concentrator was added to one of the compressors in July 2017 due to low oxygen levels caused by a duckweed infestation.⁸⁴

Zoo staff deploy two sondes at Site 1, one near the lake surface and another near the lake bottom, to continuously measure dissolved oxygen and thereby indicate when adjustments are needed to the aeration system. The sondes are connected to a solar power station equipped with a wireless device server that enables Zoo staff to remotely monitor lake water quality and download data collected by the sondes.⁸⁵

Algae management actions have included use of ultrasonic devices which were rented during summer 2008 to test their efficacy on controlling filamentous algae. An alum application was conducted in November 2008 and appeared to depress phosphorus concentrations for a period of time (average ~50 ug/l per VLMP samples collected in 2009). However, concentrations returned to current levels (average ~80 ug/L) by 2014 as indicated in water samples collected as

⁸⁵ Ibid.



⁸¹ Bullard, S.T. 2002. Fisheries Inventory Report: Indian Lake, Brookfield Zoo, October 11, 2002.

⁸² James Phillips, FPD of Cook County, personal correspondence to the author(s).

⁸³ Dave Derk via John Kanzia, Brookfield Zoo, personal correspondence to the author(s).

⁸⁴ John Kanzia, Brookfield Zoo, personal correspondence to the author(s).

part of the VLMP that year. Duckweed (*Lemna* spp.) and watermeal (*Wolffia* spp.) blooms were treated with aquatic herbicides in 2015 and 2016. Over the past several years, products that claim to "digest bottom sludge, reduce nitrites and phosphates, and eliminate surface mats and scums" have been added to the lake throughout the growing season.

Lakeshore Buffer Condition

Swan Lake's riparian (lakeshore) buffer zone was assessed by CMAP staff using a qualitative methodology that considered an area up to 25 feet inland from the shoreline. A 25 foot buffer was chosen based on research that indicates a 25-foot vegetated buffer is the minimum effective width for in-lake habitat maintenance (a 15 foot buffer is considered the minimum effective width for bank stability).⁸⁶ The following land cover categories were estimated for each segment: turfgrass lawn, flower beds, unmowed grasses & forbs, tree trunks, shrubs, beach, impervious surface. Criteria used for category assignment are presented in Table 44. Assessments were conducted using aerial imagery and field-truthed during fall 2017; the results are presented in Table 49, Figure 64, and Appendix C. Swan Lake is surrounded primarily by woodland, with some footpaths falling within the riparian buffer zone, which thereby provides an overall "good/very good" riparian condition.

Category	Shoreline Length (ft)	Percent	
Very Good	1,877	66.2%	
Good	332	11.7%	
Fair	200	7.1%	
Poor	426	15.0%	
Totals	2,835	100%	

Table 49. Swan Lake riparian buffer assessment summary.

⁸⁶ State of Vermont Agency of Natural Resources: Department of Environmental Conservation, *Shore Vegetation and Buffers*, <u>http://www.vtwaterquality.org/lakes/htm/lp_shorevegandbuffers.htm</u> (accessed September 2014) and State of Vermont Agency of Natural Resources: Department of Environmental Conservation, *Shoreland Buffer Widths*, <u>http://www.watershedmanagement.vt.gov/lakes/docs/lp_shorelandbufferwidths.pdf</u> (accessed September 2014).





Figure 64. Swan Lake riparian buffer assessment, 2017.

Shoreline Erosion Assessment

Swan Lake shoreline erosion condition was assessed by Zoo staff during December 2017 via walking the lakeshore. Each segment was staked out based on relatively homogenous shoreline conditions. A handheld GPS unit was used to document each stake's location. The criteria used for assigning erosion categories were as follows:

- None: no erosion evident;
- Minimal: minor erosion; some bare soil areas evident; considered generally stable;
- Slight: low erosion; approximately 3-6" bank heights;



- Moderate: approximately 6-12" bank heights; sloughing, undercutting, or ice heave often evident;
- High: approximately 12-24" bank heights; sloughing, undercutting, or ice heave often evident.

The results of the assessment are presented in Table 50, Figure 65, and Appendix C. An estimate of pollutant loads from shoreline erosion was made using the "impaired streambank dimensions" input table in the Gully and Streambank Erosion sheet in the STEPL model.

Erosion Level	Shoreline Length (ft)	Percent	Nitrogen Load (lb/yr)	Phosphorus Load (lb/yr)	BOD Load (lb/yr)	Sediment Load (ton/yr)
Minimal	1,021	36.0%	0.2	0.1	0.3	0.1
Slight	536	18.9%	0.5	0.2	1.0	0.3
Moderate	539	19.0%	1.7	0.7	3.5	0.9
High	739	26.1%	5.7	2.2	11.4	3.1
Totals	2,835	100%	8.1	3.2	16.2	4.4

Table 50. Swan Lake shoreline erosion assessment and pollutant load estimate summary.





Figure 65. Swan Lake shoreline erosion assessment, 2017.



3.6 Land Management Practices

3.6.1 Comprehensive and Other Local Plans

There are 33 municipalities and two counties within the Lower Salt Creek Watershed. Most of the municipalities have adopted a comprehensive plan to guide development, transportation, and conservation. The plans address natural resource and water resource concerns to varying degrees. Many plans would benefit from fuller consideration of natural resource elements, and several are old enough that they require updates to reflect more recent developments and modern practices. The following section discusses the elements of each comprehensive plan that potentially impact water quality and watershed health. Appendix D provides a list of the elements assessed, along with whether each municipality addressed, partially addressed, or did not address that element. Other local plans with water quality or natural resource components are also summarized below.

Addison (DuPage Co.)

The Village of Addison adopted its Comprehensive Plan in 2013.⁸⁷ The Plan establishes a general vision for future development in the community and includes specific recommendations for land use, transportation, and natural areas. The Plan supports a node-centric approach to development by concentrating mixed-use, pedestrian-friendly development along major roads such as Lake Street. Addison is nearly built out, so the Plan focuses on redevelopment in specific areas of the Village: the former golf course at the northwest corner of Mill and Army Trail Roads, the former Driscoll School, town center, and Shemin Nursery. The Village also aims to modernize existing industrial areas through physical improvements and updated regulations, and boost commercial development at Addison Commons and Centennial. The Plan recommends that design and construction of new development meet LEED standards by integrating smart location choice, strong neighborhood design, green infrastructure, and green buildings.

Addison residents have access to six Metra stations within four miles of the Village's boundaries. The Village also has access to bike trails including the Salt Creek Greenway Trail. The Plan supports creating non-motorized transportation opportunities through improvements in transit, pedestrian, and biking conditions. Recommended improvements include better transit connections, pedestrian and bike safety measures, and trail expansion.

The Comprehensive Plan has a section dedicated to natural features. It identifies flooding of Salt Creek as a major concern and recognizes the role of parks and open space in stormwater management. The Comprehensive Plan notes that Addison has adopted a comprehensive Stormwater and Floodplain Ordinance that aims to "protect, conserve and promote the orderly development of land and water resources." The Ordinance contains development

⁸⁷ CMAP. *Village of Addison Comprehensive Plan*. Addison: Village of Addison, 2013. Accessed Oct. 24, 2017. <u>http://addisonadvantage.org/residents/strategic.shtml</u>



requirements, run-off minimization measures, and early installation of detention storage areas. The Village is also participating in a joint community effort to modify the Busse Woods Dam which would serve to reduce flooding along Salt Creek. There are few opportunities for new open areas in the Village, but the Plan proposes requiring new developments built on over two acres to accommodate open space that is "pervious and usable for recreation and stormwater management."

Bellwood (Cook Co.)

The Village of Bellwood adopted its Comprehensive Plan in 2013.⁸⁸ It includes specific recommendations for land use, housing, economic development, mobility, and community identity. The Plan emphasizes mixed-use, transit-oriented development (within ¹/₄ to ¹/₂ mile of rail, bus or transit lines) to increase the density and walkability of the Village. Infill development and redevelopment are encouraged as other means to increase the Village's density. Redevelopment is prioritized at sites near the two Metra Stations and along major CTA and Pace routes. The Plan identifies and outlines details for six target redevelopment areas in an effort to reinvigorate existing commercial areas. These area-specific plans emphasize mixeduse development in achieving the Village's goals for redevelopment.

Bellwood has access to three expressways, a US highway, Metra, two freight lines, Pace, and the Illinois Prairie Path. By encouraging transit-oriented development the Village hopes to increase transit ridership. The Plan also encourages streetscaping (e.g., lighting, tree lawns, and sidewalk improvements) and connecting transit options to the Illinois Prairie Path to promote walking and biking. In addition, the Plan encourages paved trails along waterways to provide a safe path for travel and also to minimize disturbance caused by flooding by allowing water to infiltrate.

Although the Plan does not contain a separate natural resources section, it does identify the Village's parks and encourages provision of open space in areas not currently served. The Plan encourages enhanced connectivity through open space corridors and by incorporating a linear greenway along Addison Creek. Flooding of Addison Creek is an issue in Bellwood. The Village proposes creating a retention reservoir to help resolve flooding issues. Furthermore, the Plan prioritizes transforming Addison Creek into a valuable public outdoor and recreational corridor.

http://www.vil.bellwood.il.us/assets/1/documents/BELLWOOD COMP PLAN%20 FINAL Nov-2013.pdf



⁸⁸ Ratio, Ginko, Development Concepts Inc. Village of Bellwood, IL Comprehensive Plan. Bellwood: Village of Bellwood, 2013. Accessed Oct. 24, 2017.

Bensenville (DuPage Co.)

The Village of Bensenville adopted its Comprehensive Plan in 2015.⁸⁹ It specifically addresses future land use, transportation, and natural areas. Bensenville is built out, so the Plan focuses on redevelopment and better use of existing areas. The Plan prioritizes higher-density residential and mixed-use developments in the downtown area around Towne Center Park and along Main Street in order to meet projected growth and demand for housing. Higher density, mixed-use developments that are walkable and well-connected by transit support aging in place which is a Village priority. The Plan contains six sub-area plans, four of which are commercials corridors and two industrial corridors. Elements of these plans include shared parking, access management, streetscape and gateway improvements, and stormwater management. Stormwater management includes additional buffering for redevelopment along Silver Creek, on-site detention, and permeable pavement.

The Village will continue to support local and regional roadway improvements along with improvements to public transit. The Village is served by Metra, Pace, and Dial-A-Ride. Recommended improvements to transit include increased service frequency and better transit connections. Bensenville has no existing bike trails within its boundaries, but the Plan encourages the creation of a local bicycle network and bicycle-pedestrian master plan. In addition, the Plan encourages streetscaping and improved pedestrian amenities, which include lighting, landscaping, pavement, furnishings, and signage.

The Plan has a separate natural areas section and there is a stormwater management element throughout. Silver and Addison Creeks experience flooding. The Plan recommends several stormwater infrastructure improvements (e.g., sewer replacements) in addition to green infrastructure. The Comprehensive Plan notes that the Village has adopted the DuPage County Stormwater and Floodplain Ordinance, which requires best management practices (BMPs) on development sites to promote runoff reduction. The Plan promotes that the Village consider creating an ordinance tailored to its own needs. The Village also recognizes the role of parks and open space in stormwater management, and encourages expanding open space. Furthermore, Bensenville celebrates Arbor Day and supports installing street trees.

Berkeley (Cook Co.)

The Village of Berkeley updated its Comprehensive Plan in 2009.⁹⁰ It lays out a vision for future development and includes specific recommendations for land use, transportation, economic development, community resources, and sustainable development. Berkeley is a compact, primarily single-family residential community with walkable neighborhoods and with a commuter rail and bus service that connects residents to jobs. The Plan focuses on redevelopment of existing sites for future land use. The Plan contains subarea plans for the St.

⁹⁰ Camiros, Ltd. *Village of Berkeley Comprehensive Plan.* Berkeley: Village of Berkeley, 2009. Accessed Oct. 24, 2017. <u>http://www.berkeley.il.us/vertical/Sites/%7BB4877CC9-5533-47FA-94DE-B3C09F1665AB%7D/uploads/Comprehensive Plan -Adopted.pdf</u>



⁸⁹ CMAP. *Village of Bensenville Comprehensive Plan*. Bensenville: Village of Bensenville, 2015. Accessed Oct. 24, 2017. <u>http://www.bensenville.il.us/index.aspx?NID=636</u>

Charles Road Corridor, Berkeley Metra Station, and the Village Center, which focus on mixeduse, transit-oriented development, functionality, and sustainable design.

Berkeley supports a transportation system that minimizes impact on the environment, which includes minimizing automobile traffic where possible, encouraging a pedestrian-friendly, walkable environment, and use of public transit. Berkeley is served by Metra and Pace; the Plan supports upgrades to the Metra tracks and other improvements to these transit systems. The Plan also supports streetscape improvements to improve aesthetics and safety, which will encourage walking and biking.

The Comprehensive Plan notes that parks and open space account for approximately 1.7 percent of the total land area in Berkeley. The Village does not have forest preserves, rivers, streams, or other natural resources within its boundaries. Although the Plan does not contain a section dedicated to natural areas, its Sustainable Development chapter addresses quality of living, energy efficiency, recycling and solid waste management, air quality, low-impact development, open space and natural resources, and telecommunications infrastructure. Flooding is an issue in some neighborhoods as a result of significant storms; the Plan identifies low-impact development, green infrastructure, stormwater management fees, and impervious surface limitations as practices to reduce flooding. In addition, the Plan supports the redevelopment of brownfield sites as a means to increase open space. Furthermore, the Village of Berkeley is a Tree City USA community commended nine times by the Arbor Day Foundation in cooperation with the National Association of State Foresters and the USDA Forest Service. The Forestry Department maintains over 1000 parkway trees lining 22 miles of streets.

Bloomingdale (DuPage Co.)

The Village of Bloomingdale updated its Comprehensive Land Use Plan in 2010.⁹¹ The Plan includes a detailed existing conditions report followed by more brief sections that outline the Village's goals for land use, parks and open space, transportation, and Village identity. The Plan supports infill development and redevelopment that complements and supports adjacent uses. The Plan outlines specific development recommendations for 21 "strategic locations." Some of these recommendations include mixed residential and low-impact commercial development, but mixed-use development does not serve as an overall goal of the Plan.

The Plan supports improvements to pedestrian and biking conditions to encourage walking and biking as alternative modes of transportation. Recommended improvements include adding bicycle facilities (e.g., bike racks), establishing pedestrian/bicycle friendly connections, and expanding recreational pathways that "link residential areas to parks, forest preserves, schools, shopping, employment centers, and the larger regional pedestrian pathway network." The Plan also recommends improvements to public transportation by cooperating with other

⁹¹ Village of Bloomingdale. *Village of Bloomingdale 2010 Comprehensive Land Use Plan*. Bloomingdale: Village of Bloomingdale, 2010. Accessed Oct. 24, 2017. <u>http://www.villageofbloomingdale.org/DocumentCenter/View/858</u>



communities, but further detail is not included. Furthermore, the plan encourages shared parking and land banked parking to minimize pavement coverage and maximize landscaping.

The Plan calls for the preservation of open space and identifies Indian Lakes Resort, Hilton Indian Lakes Golf Course, and the Bloomingdale Golf Course as significant open space areas. It also promotes energy conservation and sustainability in residential homes and beautification of neighborhoods by planting street trees. However, identification and discussion of the Village's water and natural resources is lacking. Although the Plan encourages green infrastructure, such as permeable pavement, bioswales, and vegetated filter strips, there is no further discussion of stormwater management.

Broadview (Cook Co.)

The Village of Broadview updated its Comprehensive Plan in 2006.⁹² The Plan addresses land use, housing, transportation, and community facilities. The Plan is brief. It encourages mixed-use development, for Broadview is mostly built-out. Mixed-use developments currently exist along portions of the Roosevelt Road Corridor and along 17th Avenue, and the Village recognizes mixed-use as an opportunity for redevelopment projects that respond to changing market conditions. The Plan also recognizes the potential for mixed-use development near transit, but such is dependent on the location of a new train station that has yet to be determined.

The Village is serviced by freight rail that provides access to the industrial areas of Broadview, but a commuter rail service (i.e., Metra) does not run through Broadview. The Plan encourages rail and bus transit as alternative modes of transportation and supports establishing a commuter rail service through the Village. This would not only benefit the community but also reduce reliance on vehicles. Although the Plan supports developing a trail system along Addison Creek, it does not emphasize walking and biking as part of the Village's transportation system.

The Plan does not have a separate parks and open space section, but includes a short description of the Village's parks under is Community Facilities section. Broadview has six parks, and the Plan recommends expanding Playdale Park and developing several new parks. The Plan lacks discussion of water and natural resources, nor does it include stormwater management recommendations.

⁹² Teska Associates, Inc. *Village of Broadview Comprehensive Plan 2006 Update*. Broadview: Village of Broadview, 2006. Accessed 2016. <u>http://broadview-il.gov/upload/Broadview%20Comprehensive%20Plan1377292129.pdf</u>



Brookfield (Cook Co.)

The Village of Brookfield adopted its latest Comprehensive Plan in February 2018.⁹³ The Plan establishes the Village's vision for development over the next 10 to 20 years and provides specific recommendations for land use, redevelopment, housing, economic development, infrastructure, transportation, parks and recreations, natural resources, Village identity and design, intergovernmental and organizational cooperation, and program administration.

Brookfield is primarily a residential community and it is nearly built-out. Commercial areas are located primarily along major commercial corridors, including 31st Street and Ogden Avenue, the Eight Corners Area, and Downtown Brookfield. The Plan presents detailed subarea plans for these areas, which promote walkability, mixed-use, and transit-oriented development.

The Village is currently served by Metra and Pace, and the Plan recommends improvements to these services. The Plan has a goal to promote a multi-modal transportation system by creating an integrated network of roads, sidewalks, and trails; as well as improving multi-modal transportation infrastructure, including developing a bike/multi-use trail along Salt Creek. Furthermore, general suggested improvements to walking and biking conditions include limiting curb cuts, implementing wayfinding signs, and creating bicycle facilities.

The Village maintains nearly 70 acres of public parks, which include fourteen parks and recreation facilities. Additionally, extensive areas along Salt Creek within the Village boundaries are owned by the Forest Preserves of Cook County, namely Brookfield Woods and the Brookfield Zoo. The Village is continuing to seek opportunities for the acquisition and development of new parks and recreation amenities in order to better serve the population. The Village aims to protect and enhance environmentally sensitive areas, including the Salt Creek Corridor and adjacent lands. The Plan also encourages the use of green infrastructure, including creating and updating bioswales, promoting the use of permeable pavement, encouraging rain gardens, and supporting the local tree canopy to help improve the quality of life for residents and for sustainable stormwater mitigation.

Clarendon Hills (DuPage Co.)

The Village of Clarendon Hills adopted its Comprehensive Plan in 1991, ⁹⁴ which primarily addresses future development and municipal services. The Plan encourages preserving the residential nature of the Village. In the Village's central business district, the Plan encourages an optimal mix of land uses and enhancing the Village's aesthetic elements (e.g., streets, sidewalks, parkways, and lighting). The Village is nearly built-out, so the Plan supports redevelopment of sites, such as reusing industrial properties for multi-family residential, institutional, or commercial purposes.

⁹⁴ Village of Clarendon Hills. *Village of Clarendon Hills, Illinois Comprehensive Plan*. Clarendon Hills: Village of Clarendon Hills, 1991. Accessed Oct. 24, 2017. <u>http://www.clarendonhills.us/DocumentCenter/Home/View/116</u>



⁹³ RATIO Architects, Inc., Kimley-Horn and Associates, Inc., Huff & Huff, Inc. Village of Brookfield Comprehensive Plan. Village of Brookfield, 2018. Accessed March 2018. http://www.ratiodesign.com/Brookfieldcp

The Plan lacks detail on transportation. The Plan addresses traffic circulation and recommends traditional techniques to re-route or reduce traffic, which include additional traffic signals and speed limits. Although the Plan recommends improvements to sidewalks, parkways, signage, lighting, landscaping, and furniture areas, which serve to enhance pedestrian conditions, it does not emphasize alternative modes of transportation as a means to reduce vehicular traffic.

The Plan's goals and objectives address important natural resource issues. The Plan recognizes the need for open space even at the expense of new development and when land is unsuitable for development. The Village has several large parks, and the Plan supports that existing parks and open space be maintained and expanded. The Plan encourages the use of trees, shrubs, bushes, flowers, and other plants in landscape design to promote drainage. In addition, it calls for protecting surface water resources and natural groundwater recharge areas from pollution and encroachment of urban development. Furthermore, the Plan encourages that open space should be combined with stormwater retention or detention if size and topography are adequate.

Downers Grove (DuPage Co.)

The Village of Downers Grove updated its Comprehensive Plan in 2011.⁹⁵ The Plan is detailed and specifically addresses land use, transportation, parks and open space, and community facilities. The Village's residential districts are largely developed, so new residential development will occur in the form of alterations or additions to existing housing stock. The Plan encourages sustainable energy and green building initiatives in residential areas. The Village's downtown area is characterized by mixed-use development, and the Plan encourages a diverse mix of uses be maintained in this area. The Plan also outlines recommendations for five key focus areas: Belmont/Ellsworth, Downtown, Butterfield, Ogden, and Fairview. The focus areas are intensely developed, economic generators with important transportation facilities, and they are highly visible to residents. The Plan emphasizes reducing the heat island effect and encouraging brownfield redevelopment in the Village's redevelopment efforts.

Downers Grove is serviced by Metra and Pace, and the Plan supports improvements that prioritize public transportation. These include modifying or expanding bus routes, implementing Intelligent Traffic Systems (ITS), and coordinating shuttle service to Metra. Furthermore, the Village adopted a Bikeway Plan in 2000, and the Comprehensive Plan emphasizes pedestrian and bicycle mobility. The Comprehensive Plan supports improvements to existing biking and walking conditions, which include: better connections, safety initiatives, sidewalk installation, streetscaping, and wayfinding signage.

The Plan includes a detailed Parks, Open Space, and Environmental Features section. Stormwater management is emphasized throughout the Plan. The Village relies on the use of natural features, such as creeks, marshes and rivers, as part of its stormwater management

⁹⁵ Houseal Lavigne Associates, LLC. Village of Downers Grove Comprehensive Plan. Downers Grove: Village of Downers Grove, 2011. Accessed Oct. 24, 2017. http://www.downers.us/public/docs/departments/com_dvlpment/CompPlan2011.pdf



system. Lacey Creek, St. Joseph Creek, and Prentiss Creek flow within Downers Grove and drain into the East Branch of the DuPage River. The Plan also supports the use of naturalized stormwater retention and detention basin areas, and stormwater management practices in development and parking areas. In addition, the Plan supports limiting development within floodways and floodplains. Furthermore, the Plan emphasizes the importance of the Village's tree canopy, and recommends additional plantings with new development. The Plan also encourages that publicly owned trees and wooded areas be preserved.

The Village updated its Stormwater Master Plan in 2006. The Plan provides information about the existing stormwater issues in the Village, the condition of the stormwater system, the adequacy of system components, and estimated costs for necessary maintenance, capital improvements, and regulatory requirements. The Plan provides the Village with information for establishing strategies for future infrastructure management, identifying preliminary budgetary needs, and identifying alternatives for financing an adequate stormwater program. The Plan provides recommendations for residential redevelopment, water quality monitoring, BMPs, good housekeeping practices, stormwater storage areas, floodplain buyout, public education and outreach, and operations and maintenance.

The Village also developed a Watershed Infrastructure Improvement Plan (WIIP) in 2007 to assess drainage issues within the three primary watersheds in the Village: Lacey Creek, St. Joseph Creek, and Prentiss Creek, which drain to the East Branch of the DuPage River. The Plan makes recommendations directed to specific areas to improve the Village's stormwater system in terms of conveyance, storage, and quality.

Elk Grove Village (Cook Co.)

Elk Grove Village does not have a comprehensive plan or other relevant plans.

Elmhurst (DuPage Co.)

The City of Elmhurst adopted its most recent Comprehensive Plan in 2009.⁹⁶ The plan addresses land use, transportation, economic development, community facilities and services, natural resources, sustainability, urban design, and governance. Elmhurst is a mature community largely composed of single-family neighborhoods. The Plan promotes infill development in existing neighborhoods and encourages that LEED for Neighborhood Development strategies are incorporated in neighborhood redevelopment efforts. These strategies encourage healthy living, protecting threatened species, and increasing transportation choice. The Plan emphasizes pedestrian-oriented and environmental practices throughout. Additionally, the Plan encourages transit-oriented and higher density residential development in the downtown area. Furthermore, the Plan contains nine subarea plans, which provide recommendations for mixed-use, pedestrian friendly development or redevelopment.

⁹⁶ HNTB Corporation. *City of Elmhurst Comprehensive Plan: Imagining The Future - Community-Wide And Sub-Area Plans.* Elmhurst: City of Elmhurst, 2009. Accessed Oct. 24, 2017. <u>http://elmhurst.org/DocumentCenter/View/540</u>



In regards to transportation, Elmhurst has an extensive roadway network, commuter rail and bus transit system, and a well-connected pedestrian and bike network. The Plan supports infrastructure improvements to encourage transit usage (e.g., bus shelters) and improved routing of Pace bus service. There is a strong emphasis on alternative transportation. The Plan recommends that new commercial development or redevelopment projects facilitate pedestrian and bicycle access. The Plan also encourages "complete streets" with a complete sidewalk network, bike lanes, bike racks, and pedestrian amenities. Furthermore, the City has access to the Illinois Prairie Path and trails are currently under construction along Salt Creek which will provide connections to existing regional trails.

The Plan has a separate Natural Resources section calling for the preservation of natural resources and open space and improved access to natural resources, such as the Illinois Prairie Path, Salt Creek, the Elmhurst Great Western Prairie, and forest preserves. In addition, the Plan encourages integrating open space in new construction. Improvements for the Salt Creek Greenway include a new multi-use trail, stream bank stabilization, and a water quality demonstration project. A large area along Salt Creek is within the 100-year floodplain and a considerable portion is maintained as open space to manage flooding. The City recognizes the impact of excessive runoff from non-permeable surfaces on groundwater and outlines run-off reduction practices, along with sustainable landscaping practices, to conserve water and minimize groundwater contamination. Run-off reduction practices include bio-retention, permeable pavement, and rain gardens. In addition, the Plan supports planting urban street trees in neighborhoods and recognizes the economic and environmental benefits of trees. Furthermore, as part of the City's sustainability efforts, the plan encourages LEED principles, which include "smart location" in proximity to water and wastewater.

The Plan contains a separate Sustainability section, which not only addresses environmental sustainability in regards to climate change mitigation and energy efficiency, but it also addresses accessibility, alternative transportation, and policy. For example, the Plan supports economic development policies designed to promote sustainability, which include supporting home-based work and business activities. In addition, the Plan supports developing housing policies that encourage residents to adopt sustainable practices in their home or business. Furthermore, the City released a report in 2013, *Building a Sustainable City: Environmental Accomplishments in the Elmhurst Community*, highlighting its sustainability efforts from 2007-2012. The report is comprehensive and addresses various areas of sustainability (e.g., waste, energy, open space, biking, gardening, and education) at various scales. Lastly, the Comprehensive Plan includes an extensive Urban Design section that outlines goals and objectives that embody the concepts throughout the Plan and aim to create an aesthetically-pleasing, connected, and pedestrian-friendly community.



Franklin Park (Cook Co.)

The Village of Franklin Park adopted its latest Comprehensive Plan in August 2017.⁹⁷ The Plan addresses land use, economic development, transportation, infrastructure, community facilities, natural resources, and community character and design. The Plan contains an environmental element throughout. Nearly all of the land within and near Franklin Park has been developed. However, several areas have potential for redevelopment, improvement, or changes in type or intensity of land use. The Plan identifies the Martens Street area and Grand/Mannheim Commercial area as priority planning areas. Land use recommendations include developing a range of housing choices, expanding the mix of businesses, mixed-use and transit-oriented development, and redevelopment or reuse of underutilized industrial and commercial sites. Redevelopment and reuse uses the land in an efficient and environmentally friendly manner.

In addition to infrastructure upgrades to the existing road network, the Plan encourages alternative modes of transportation through transit, bicycle, and pedestrian improvements. A Metra Station exists in downtown Franklin Park and the Village aims to increase ridership through transit-oriented development. Other improvements include establishing new transit service to O'Hare Airport and provision of bus shelters. Recommended improvements to promote walking and biking include landscaping, constructing pedestrian bridges, sidewalk infill and repair, crosswalks, and dedicated bike lanes and facilities. The Plan encourages alternative transportation options as a means to protect air quality.

The Plan contains a strong environmental element, encouraging stormwater reduction techniques and green infrastructure. Similarly, the Plan promotes natural landscaping and green space in development. Specific water and natural resources are not identified, but the Plan calls for their preservation in general through many strategies. The Plan also emphasizes tree preservation as a community goal. Furthermore, the Village supports brownfield redevelopment and explicitly has principles pertaining to water quality and conservation. It calls for the adoption of "water, wetland, and floodplain protection ordinances…to prevent degradation of water quality and habitat." Lastly, the Plan encourages participation in groundwater protection efforts; Franklin Park is one of the few municipalities that mentions groundwater in its Plan.

Hillside (Cook Co.)

The Village of Hillside does not have a comprehensive plan or other relevant plans.

http://www.cmap.illinois.gov/documents/10180/450596/Franklin+Park+Final+Comprehensive+Plan/d44dc063-6480-4b24-bb7d-5a2c423d84bd



⁹⁷ CMAP. *Village of Franklin Park Comprehensive Plan*. Franklin Park: The Village of Franklin Park, 2017. Accessed Oct. 24, 2017.

Hinsdale (Cook Co.)

The Village of Hinsdale does not have a comprehensive plan or other relevant plans.

Itasca (DuPage Co.)

The Village of Itasca updated its Comprehensive Plan in 2015.⁹⁸ The Plan outlines the Village's recommendations for land use, transportation, community facilities, and parks and open space. The Plan recommends mixed-use development in the downtown by establishing a residential base that supports retail activity. It also supports that mixed-use areas "provide a vibrant, safe, attractive and 'walkable' pedestrian environment." The Plan incorporates preservation of open space and stormwater management practices throughout its land use recommendations. There are two subarea plans included in the Comprehensive Plan: Hamilton Lakes and the Central Manufacturing District (CMD). The Hamilton Lakes Subarea Plan supports a mix of office and residential development, and the CMD Subarea Plan focuses on industrial and commercial development. Both plans encourage connectivity and aesthetic improvements.

The Elgin O'Hare Western Access Project, currently being constructed, will positively impact access to the Village by improving regional mobility and promoting economic development in and around the Village. Additionally, the Plan recommends completing gaps in the roadway network and making improvements to traffic flow, site access, and overall circulation as needed. In regards to public transit, the Village is served by Metra and Pace, and the Plan encourages that these services be maintained and enhanced. The pedestrian and bicycle network is inconsistent and incomplete. The Plan recommends incorporating sidewalks, crosswalks, greenways, and multi-use paths to connect to surrounding networks and uses. Furthermore, the Plan encourages that the Village consider adopting a "Complete Streets" ordinance and a Sidewalk Gap Program to further support pedestrian and bicycle movement.

Parks and open space are a valued asset in the community, and the Village is well-served by parks and open space, including two DuPage County forest preserves. The Plan encourages that the Village continue to preserve and enhance its environmental features. In addition, the Village recognizes the importance of open space and natural features in facilitating stormwater infiltration. Furthermore, local stormwater detention areas and the Wood Dale/Itasca Regional Detention Project and Flood Control Reservoir serve as significant investments in stormwater management infrastructure and in mitigating flooding along Salt Creek and Spring Brook. The Plan encourages that the Village continues to explore natural methods of flood control and stormwater management, including best management practices (BMPs).

⁹⁸ Village of Itasca. *Village of Itasca 2015 Comprehensive Plan*. Itasca: Village of Itasca, 2015. Accessed Oct. 24, 2017. <u>http://www.itasca.com/DocumentCenter/View/6478</u>



La Grange (Cook Co.)

The Village of La Grange adopted its most recent Comprehensive Plan in 2005.⁹⁹ The Plan addresses future land use, mobility, community facilities, and economic development. La Grange is built out, so the Plan recommends infill development. It also contains a detailed subarea plan for the BNSF Railroad Corridor. The Plan encourages transit supportive redevelopment within the Corridor, with a mix of retail, service businesses, and multi-family housing.

In regards to transportation, the Plan encourages improved traffic flow on roads and alternative modes of transportation. The Plan recommends improved public transit facilities and service through Metra and Pace, along with improvements to walking and biking conditions. Amtrak also serves the Village and is the only transit service that extends beyond the Chicago metro area, providing an important service to residents. Walking and biking improvements include complete sidewalks, bicycle parking facilities, and safety measures. The Plan also recommends continuing to develop "a local bicycle system with regional continuity."

The Plan encourages that open space be maintained and enhanced. The *Open Space Master Plan*, adopted in 2000 by the La Grange Park District, is a detailed plan that prioritizes and provides recommendations for property acquisition, facility development, and park maintenance. The Comprehensive Plan encourages the protection of historic and natural resources, but neither natural or water resources are described in further detail. The Plan identifies that there are capacity issues with the Village's stormwater infrastructure. In a number of areas, sewer backups occur causing flooding. To address flooding, the Plan recommends developing a system of relief storm sewers. There is no mention of green infrastructure or best management practices (BMPs) to address flooding.

La Grange Park (Cook Co.)

The Village of La Grange Park updated its Comprehensive Plan in 2006.¹⁰⁰ The Plan establishes a general vision for future development in the community and specifically addresses land use, transportation, community facilities and infrastructure, and design guidelines. La Grange Park's housing stock is primarily single-family residential, and the Plan encourages that this use be maintained and that development primarily be infill. In addition, the Plan discourages expansion of commercial area boundaries while attracting retail business and remaining economically viable. The Plan also supports that the impact of industrial businesses on residential neighborhoods be minimized through buffering. Furthermore, the Plan encourages redevelopment of underutilized or vacated properties. However, mixed-use and transit-oriented development are not included in land use recommendations.

¹⁰⁰ Teska Associates, Inc. *Comprehensive Plan Village of La Grange Park*. La Grange Park: Village of La Grange Park, 2006. Accessed Oct. 24, 2017. <u>http://www.lagrangepark.org/vertical/sites/%7B84B8C7A6-E0D4-419A-B9AB-402A81379BFC%7D/uploads/Comprehensive Land Use.PDF</u>



⁹⁹ HNTB Corporation, Goodman Williams Group. *Comprehensive Plan and BNSF Railroad Corridor Subarea Plan*. La Grange: Village of La Grange, 2005. Accessed Oct. 24, 2017.

http://www.villageoflagrange.com/DocumentCenter/Home/View/91

The Plan encourages a multi-modal transportation system and recommends improvements to roads as well as to transit, pedestrian, and bicycling conditions. The Village is served by four major Pace bus routes and two Metra stations, and the Plan supports enhancing transit services and increasing ridership by working with Pace and Metra to provide bus shelters and developing a commuter transit station north of 31st Street. Recommendations for pedestrian and bicycle conditions include improved facilities (e.g., lighting, street furniture, and bike racks), installing sidewalks, and improved connections. The Plan supports developing an on-street path that can link key community facilities, including the Salt Creek Trail, within residential areas. There is little opportunity for additional off-street trails because the Village's land is already fully developed.

The Community Park District maintains six parks in the Village. The Plan supports the preservation of all park district properties and increasing the supply of land available for open space and recreation if possible. It does, however, lack a natural resources and water element. Water supply is addressed, as it is a concern for the Village, but the section does not include a discussion of water resource conservation or water quality.

Furthermore, the Village adopted a Sustainability Plan in 2012 to establish a framework for future decision-making by the Village government to make sustainable choices, and thereby enhancing the quality of life of residents. The Plan outlines strategies pertaining to water, land, air, energy, and waste. Water strategies include BMPs, watering restrictions, sub-metering, and education.

Lombard (DuPage Co.)

The Village of Lombard updated its Comprehensive Plan in 2014.¹⁰¹ The Plan addresses land use, transportation, economic development, and community facilities. In regards to land use, the Plan supports mixed-use activity in the downtown. The Village is committed to sustainability and encourages the use of environmentally friendly design materials and construction techniques in new development and redevelopment. The Plan also identifies eleven "Areas of Concern" and provides a brief recommended action for each area. Recommendations are focused on reclassification of subject properties to allow for uses deemed appropriate by the Village.

The Village aims to create a multi-modal transportation network. Recommended infrastructure improvements include a "complete streets" approach to address the needs of pedestrians, bicyclists, transit users, motorists, and property owners alike. The Plan provides recommendations for general roadway improvements, public right-of-way, and access control. In regards to public transportation, the Village has access to both Metra and Pace. Lombard also has access to the Illinois Prairie Path and the Great Western Trail, and the Plan encourages developing a local system that provides connections to these regional trails.

¹⁰¹ Village of Lombard. *Village of Lombard, Illinois Comprehensive Plan.* Lombard: Village of Lombard, 2014. Accessed Oct. 24, 2017. <u>http://www.villageoflombard.org/DocumentCenter/View/12530</u>



The Plan encourages preservation of open space and protecting the natural environment, which includes pursuing additional opportunities for open space. The Plan recognizes the stormwater benefits in addition to the recreational benefits of maintaining current open space. In addition, the Village has a separate Open Space Plan (2010) that "identifies who is involved with open space, what open space currently exists, and which factors affect open space." Four park districts own property within the Village and provide parks and recreational facilities. The DuPage County Forest Preserve District also has one property (Broadview Slough) within Village limits, and two forest preserves lie in unincorporated Lombard.

The Village's Open Space Plan addresses "Special Management Areas," which include wetlands and wetland buffers, riparian areas and floodplains. The DuPage County Stormwater and Floodplain Ordinance controls development in these areas and requires best management practices (BMPs) for water quality. The Open Space Plan notes that all large scale development within the County, and within Lombard, is required to both detain stormwater runoff and treat the stormwater for pollutants. Treatment methods (BMPs) include permeable pavers, green roofs, and wetland-bottom ponds. The Open Space Plan also identifies conservation easements as another tool used to preserve open space and protect the environmental value of privatelyowned land by restricting its use and development. Property owners are able to receive tax benefits in exchange for donating a conservation easement to a conservation organization or government entity. Several churches in Lombard, along with some residential and commercial properties, have conservation easements. In addition, the Open Space Plan recommends that the Village should pursue annexation of certain parcels (Ken-Loch Golf Links, Fullerton Park, and York/High Ridge Forest Preserve) to ensure that these areas remain as open space.

Lastly, the Village developed a Local Climate Action Plan in 2012. In 2009, the Village signed the U.S. Mayors Climate Protection Agreement to pledge to reduce greenhouse gases by 7 percent below 1990 levels by 2012. Strategies to achieve this goal included:

- Reduce electrical consumption of Village operations and facilities
- Partner with ComEd to promote energy efficiency/savings programs
- Partner with the Citizens Utility Board to promote residential energy reductions
- Facilitate sustainable building practices and energy efficiency
- Promote emission-free transportation options
- Reduce waste hauling and landfilling
- Enact land-use policies that preserve open space and preserve smart growth
- Maintain the urban forest
- Educate the community about greenhouse gas emissions
- Increase fleet fuel economy by reducing idling and purchasing more fuel-efficient vehicles
- Switch to renewable energy sources



Although there were reductions in some areas, the Village's actions only reduced CO₂ emissions by 0.26 percent, or about 2,000 tons.

Lyons (Cook Co.)

The Village of Lyons adopted its latest Comprehensive Plan in 2015.¹⁰² The Plan provides recommendations for land use, transportation, economic development, natural environment, and community facilities and services. Lyons is primarily residential and largely built out. The Village aims to preserve existing housing stock while also meeting the housing needs of an aging population, which includes densifying and diversifying housing options through infill development or redevelopment. The Plan supports mixed-use, pedestrian friendly development near major commercial areas which are located along major traffic corridors and key intersections. Furthermore, the Plan supports the development of a town center at the intersection of Ogden Avenue and Joliet Avenue, which will be a mixed-use commercial destination. This would transform a busy, auto-oriented intersection to a pedestrian-friendly, walkable area.

The Plan supports a balanced transportation system and recommends improvements to the existing roadway network as well as to transit, pedestrian, and bicycle conditions. The Plan recommends updates and maintenance of roadways to accommodate traffic volume and improve efficiency. Lyons' residents infrequently use public transit; only one Pace bus route passes inside Lyons, and Metra does not directly serve the Village. The Plan calls for enhancing access to public transit through expanding bus service connections. In addition, the Plan encourages development of pedestrian and bike facilities, sidewalk improvement, and expansion of the Village's trail network in an effort to promote walking and biking.

The Plan has a separate natural environment section that recommends preservation of natural resource amenities, expansion and improvement of open space, and better connections between open space. The Des Plaines River, and the acres of preserved land that surround it, have shaped the image and character of Lyons. The river has, however, experienced flooding. In addition to upgrading stormwater infrastructure, the Plan supports installation of green stormwater infrastructure and innovative design elements such as native plantings, community gardening beds, and drainage swales. Lastly, the Village promotes participation in a rain barrel program which is part of the Metropolitan Water Reclamation District's (MWRD's) green infrastructure initiative to help municipalities with managing stormwater and reducing water pollution.

¹⁰² CMAP. Lyons Comprehensive Plan. Lyons: Village of Lyons, 2015. Accessed Oct. 24, 2017. <u>http://www.cmap.illinois.gov/documents/10180/59662/LYONS%20COMP%20PLAN/fdb1116f-6e54-4605-a2d7-309ebbab10cc</u>



Maywood (Cook Co.)

The Village of Maywood updated its Comprehensive Plan in 2014.¹⁰³ The Plan outlines the Village's vision for land use, transportation, environmental features, community facilities, and community image. Recommendations for land use include building high-density, mixed-use development along 5th Avenue and 19th Avenue surrounding the Metra stations. In addition, the Plan addresses brownfield redevelopment and encourages establishing a Village-wide remediation program that prioritizes investment in brownfield clean-up.

In addition to roadway improvements, the Plan supports investing in streetscaping, sidewalk improvements, bicycle trails, and bicycle parking to encourage walking and biking as alternative modes of transportation. It also promotes better connectivity to the Cook County Forest Preserves and Illinois Prairie Path. The Plan recommends that Maywood also support the Transportation Alternative Program and the Safe Routes to School Program which provide funding for various infrastructure-related projects. Furthermore, the Plan recommends improvements to Metra, Pace, and the CTA. One CTA bus route runs through Maywood, and the CTA Blue Line terminates just east of Maywood in Forest Park. A feasibility study is in process to determine the potential extension of the Blue Line to Mannheim Road.

The Plan contains a separate Open Space & Environmental Features section which identifies the Village's parks, forest preserves, and the Des Plaines River. The Plan calls for preservation of the Des Plaines River, Village tree canopy, and other important natural features. The Plan supports some innovative concepts, such as focused lighting fixtures that reduce upward light pollution from I-290, and vibration dampening barriers to minimize the environmental impacts of traffic. Although few properties are impacted by flooding, the Plan supports prohibiting new development within existing floodplains and suggests working with property owners to mitigate floodplain hazards through on-site stormwater detention and filtration. Sustainable development practices, such as stormwater filtration, renewable energy sources, green building standards, use of native landscaping, and recycling are also included as recommendations. For example, it calls for utilization of stormwater best management practices (BMPs) in streetscaping.

Melrose Park (Cook Co.)

The Village of Melrose Park adopted its Comprehensive Plan in 2001.¹⁰⁴ The Plan outlines the Village's vision for land use, transportation, environmental areas, and community facilities. Melrose Park is a mature, primarily residential community with a stable commercial component and strong industrial base. The Plan recommends that zoning allows for mixed-use development along 5th Avenue and 19th Avenue, surrounding the Metra Station. The Plan

¹⁰⁴ Trkla, Pettigrew, Allen & Payne, Inc. *Village of Melrose Park Comprehensive Plan*. Melrose Park: Village of Melrose Park, 2001.



¹⁰³ Houseal Lavigne Associates, LLC. Village of Maywood Comprehensive Plan. Maywood: Village of Maywood, 2014. Accessed Oct. 24, 3017. <u>http://www.maywood-il.org/Reference-Desk/Comprehensive-Plan/Maywood-Comprehensive-Plan-to-Village-Board-ADOPTE.aspx</u>

contains three corridor improvement recommendations for the North Avenue Corridor, Lake Street Corridor, and Broadway Avenue Business District. Recommendations are provided for use and development, parking and circulation, urban design, and site maintenance. In addition, the Plan describes ten priority redevelopment/improvement sites. The Village also aims to physically enhance and improve areas of the Village in order to promote a sense of community and pride.

The Village has a well-established network of road, rail, and mass transit services. The Plan promotes a balanced transportation system that ensures the safe and efficient movement of vehicles, pedestrians, and bicyclists alike. The Village is currently served by nine Pace bus lines and the Union Pacific/West Metra line. Along with street improvements and traffic management, the Plan recommends improved rail and bus service to meet future demands. Furthermore, the Plan recommends developing a connected pedestrian and bicycle system. Specific improvements may include safe design of street intersections, street lighting, and surface conditions.

The Plan encourages that the local public park system be maintained and locations for new open space are established. The Plan identifies and describes four primary environmentally sensitive areas within Melrose Park – Des Plaines River, Cook County Forest Preserve, Silver Creek, and Addison Creek – and supports that they be protected and enhanced. Furthermore, the Plan recognizes the role of these areas in natural water filtration, stormwater holding, and flood control management. The Plan outlines strategies for improving these areas in regards to habitat quality and also as components of the larger stormwater management system. It also promotes watershed-based planning, stream protection, soil erosion and sediment control, stream maintenance and streambank protection, and use of native vegetation as strategies to improve environmentally sensitive areas.

Northlake (Cook Co.)

The City of Northlake adopted its Comprehensive Plan in 2013.¹⁰⁵ The Plan addresses land use, transportation, environmental features, governance, and community services. The City is builtout, so the plan focuses on redevelopment and infill development, along with mixed-use development at major intersections (North Avenue and Wolf Road) and along commercial corridors. Although the City's housing stock is primarily single-family, the Plan recommends a mix of housing options to support "aging in place." The City also aims to attract quality businesses and collect data on industrial properties to potentially cleanup and reuse brownfield properties. Furthermore, the Plan encourages innovation and improved energy efficiency in businesses.

Northlake is located close to the Interstate system, major arterials, O'Hare International Airport, and rail transit. The Plan aims "to create a multi-modal transportation system that improves

¹⁰⁵ CMAP. *City of Northlake Comprehensive Plan.* Northlake: City of Northlake, 2013. Retrieved Oct. 24, 2017. <u>http://www.cmap.illinois.gov/documents/10180/24006/FY13-</u> 0099+NORTHLAKE+LTA+PLAN+Adopted+May_28/82cf58a1-eb7c-4d56-b4a5-d08ebb04add4



the roadway network while strengthening the use of transit, bicycling, and walking." Desired roadway improvements include improved traffic flow along North Avenue and installing direct access from I-294 (southbound) to North Avenue (eastbound). To expand public transit, the City will work with Pace bus service. Pace provides service along the major corridors within Northlake, but it is not used by a majority of residents. New redevelopments, encouraging local businesses to use transit, and exploring different types of bus services may increase ridership. Pedestrian and bicycle improvements include installing pedestrian features (e.g., lighting, paved crosswalks, and wayfinding signage) and expanding upon the existing trail network.

The Plan provides a detailed overview of the City's existing environmental features. These include parks and open space and Addison Creek. The City aims to maintain existing parks and acquire open space to create new park sites. The City also recognizes that its decisions regarding waterways affect communities downstream and it recognizes the role of open areas in stormwater management. Addison Creek has flooding and water quality issues; in order to address these issues, the City, Veterans Park District, and Memorial Park District have led initiatives aimed at improving the natural infrastructure along the creek. Initiatives include dam removal and returning the creek to a natural flow. Northlake also worked with the Metropolitan Water Reclamation District (MWRD) to decrease erosion along the creek's banks and reduce the size of the floodplain area. The Plan recognizes green infrastructure and stormwater BMPs as means to deal with future flood issues.

North Riverside (Cook Co.)

The Village of North Riverside does not have a comprehensive plan or other relevant plans.

Oak Brook (DuPage Co.)

The Village of Oak Brook's Comprehensive Plan was last amended in 1990.¹⁰⁶ The Plan promotes preservation of the low density and open space character of the Village and includes special use housing considerations to provide for single-family residential development. It promotes that offices be located near principal arteries and commercial areas be accessible by all forms of transportation.

Along with roadway improvements, the Plan recommends developing interconnected footpaths, bicycle trails, and sidewalk systems. It also encourages more people to ride in each vehicle and greater utilization of pedestrian and bike pathways, which will lessen the pressure for widening roadways. Widening is discouraged, especially in residential areas. In addition, the Plan promotes locating schools in easily accessible areas and providing necessary safety precautions to allow children safe and protected trips to and from school. The Comprehensive Plan notes that the Village has a formal bicycle and pedestrian master plan, but it needs to be updated. Furthermore, the Plan encourages the use of public transit and improved bus service to reduce vehicular traffic volume.

¹⁰⁶ Village Staff, General Planning & Resources Consultants. *Comprehensive Plan Village of Oak Brook*. Oak Brook: Village of Oak Brook, 1990. Retrieved Oct. 24, 2017



The Plan has a strong preservation element. Open space is one of Oak Brook's greatest assets. The Village has several parks owned by Oak Brook Park District, two major private golf courses, and two DuPage County forest preserves within or near the Village. The Plan supports that the Park District be guaranteed the first opportunity to acquire the few large tracts of land left in the Village. The Village recognizes the role of parks and open space in minimizing flooding, and the Plan recommends that floodplains be preserved as open space and future development be controlled in the floodway fringes. In addition, the Plan supports building retainage areas to protect the Village from possible damage by increased urban runoff. Furthermore, the Plan promotes the use of trees and landscaping along streets and in parking lots to enhance the aesthetics of the Village. Lastly, the Plan encourages that developers of commercial and industrial structures include more green areas and landscaping.

Oakbrook Terrace (DuPage Co.)

The City of Oakbrook Terrace updated its Comprehensive Plan in 2007.¹⁰⁷ The Plan addresses land use, transportation, parks and open space, community facilities, and urban design. The Plan supports appropriate infill development to accommodate new development. In addition, it promotes a balanced pattern of development with a healthy and mutually reinforcing mix of commercial, retail, and service uses along certain corridors. The Plan includes eight distinct City Planning Units comprised of areas within the City and provides recommendations for land use, transportation, and urban design.

The Plan encourages "a balanced transportation system, which ensures the safe and efficient movement of vehicles, pedestrians and cyclists." Roadway improvements include widening of major roads and traffic operational measures to better accommodate traffic. Recommended improvements to bicycle and pedestrian conditions include expanding the City's trail system by building upon the Spring Creek Tributary Trail and improving access to the Salt Creek Greenway and other park sites. The Plan also recommends streetscaping and urban design improvements including lighting, landscaping, pedestrian amenities, and gateway signage. There are four Pace bus routes that serve Oak Brook Terrace, but recommendations to improve public transit are not noted.

The Plan identifies the City's parks and open spaces and encourages that natural features – topography, watercourse, floodplains, woodlands, and wetlands – be respected, but further detail and preservation measures are lacking. The City recognizes that acquiring new open space is needed to meet the needs of the community, and the Plan's objectives are geared primarily towards the recreational aspect of open space. The Plan recommends landscaping of streets and parking lots "to avoid large expanses of asphalt…," and planting regularly spaced street trees along both sides of the street as part of the Plan's design guidelines, but such guidelines are in place primarily for aesthetic purposes rather than for stormwater

¹⁰⁷ Houseal Lavigne Associates, LLC. *City of Oakbrook Terrace Comprehensive Plan*. Oakbrook Terrace: City of Oakbrook Terrace, 2007. Retrieved Oct. 24, 2017. <u>http://www.oakbrookterrace.net/vertical/sites/%7B6CCAEA46-0A56-47DB-9AEF-C71190151813%7D/uploads/good Comprehensive Plan from scan.pdf</u>



management. Lastly, the Plan promotes that open spaces and courtyards be promoted as part of private development projects.

Roselle (Cook Co. and DuPage Co.)

The Village of Roselle updated its Comprehensive Plan in 2016.¹⁰⁸ It addresses land use, transportation, and natural resources. Roselle is a mature and significantly built-up community, so the Plan focuses on maximizing redevelopment of underutilized land in already built-up areas. It also recommends expanding the Irving Park Road Metra station area to create a stronger transit oriented town center. The Plan includes five subarea plans that contain similar themes of mixed-use, pedestrian friendly development.

There is no Pace fixed-route transit service in Roselle, but Dial-A-Ride is available to address the unmet travel needs of seniors and persons with disabilities. Roselle is served by three Metra stations, but the Plan recommends better connectivity to them to allow for walking or bicycle access. It also supports transforming Irving Park Road and Roselle Road into multimodal pedestrian and bike friendly streets. The Village has access to multiple municipal and regional trails, and the Plan supports creating a connected trail system that links residential areas to major activity centers. Furthermore, the major arterials in the Village are included in Pace's long term strategic plan, contingent upon first establishing transit supportive land uses.

The Plan promotes that the Village strengthens existing open spaces and preserves natural areas. The Plan encourages open space development at the Village Square, Irving Park Road and Maple Avenue, I-390, and North Roselle Road Corridor. It also promotes enhancing Medinah Wetlands. The Village is served by four park districts and has major open space anchors including Turner Park and Meacham Grove Forest Preserve. Many of Roselle's existing parks were originally planned to serve as stormwater detention or retention areas and continue to fulfill that role today. The Plan recommends that the Village undertake a stormwater management plan to determine if current parks are sufficient to meet the regulatory needs of the DuPage County Stormwater Ordinance and to determine where new stormwater facilities might need to be built to support new development. In addition, the Plan incorporates stormwater detention, open space, landscaping, and buffering into designs for subarea plans.

¹⁰⁸ Ginko. *Where Today Meets Tomorrow: 2016 Comprehensive Plan.* Roselle: Village of Roselle, 2016. Retrieved Oct. 24, 2017. <u>http://www.roselle.il.us/DocumentCenter/View/2747</u>



Schaumburg (Cook Co. and DuPage Co.)

The Village of Schaumburg last updated its Comprehensive Plan in 1996.¹⁰⁹ It addresses land use, economic development, transportation, natural amenities, and design guidelines. There is limited space for new development, so the Plan promotes infill development and adaptive reuse. Single-family development is preferred for infill development to preserve and maintain the character and congruity of existing single-family neighborhoods. The Village does, however, have a strong mix of housing types. Also, the Plan encourages mixed-use development in the Regional Center, the Irving Park Road Region, and the Community Center.

Schaumburg is infamous for traffic. The Plan recommends focusing improvements along the highways and regional corridors. The Village does recognize that relying solely on automobile transit is detrimental to the environment and community. Pace has been making improvements to the Village's bus system, and the Village also adopted the Year 2000 Bikeway Plan in 1993. A contiguous pedestrian and bicycle circulation system along with safety initiatives will encourage the use of sidewalks and bikeways. The Village also hosts a Metra commuter rail facility and supports an alternative transit system, such as Personal Rapid Transit, a monorail system that can carry up to four individuals in their own car and allows them to program their destination on a set course. Other suggestions include employee commute options to accommodate flexible schedules, compressed work weeks, car pools, and other incentives for employees to change their commuting habits. In 2008, the Village adopted an amendment to the Plan to incorporate transit-oriented development for the area around the Suburban Transit Access Route (STAR). STAR is a proposed rail line that would connect nearly 100 communities in the northwest suburbs.

The Plan has a strong preservation element. Given that Schaumburg is reaching full development, focus is placed on maintaining and enhancing the sites that have already been preserved. The Plan encourages limiting development on unstable lands and wetlands and maintaining significant tree stands. Also, the Village has a Wetland Protection District that protects people from potential geological and hydrological hazards, prevents degradation of land and water, and ensures development enhances the natural topography, resources, amenities, and fragile environment of wetlands. The Plan suggests land banking as a technique to preserve wetlands. Similar measures apply to the Village's floodplains and open space. In addition, the Village has adopted Tree Preservation, Landscaping, and Screening Requirements into its Zoning Ordinance to protect those trees that are not in a preserve. In 2004, the Village adopted an amendment to the Comprehensive Plan to incorporate the Chicago Wilderness Biodiversity Recovery Plan. Using the directives from the Biodiversity Recovery Plan, design guidelines for properties with desirable natural amenities were adopted by the Village board to ensure the preservation of these areas.

¹⁰⁹ Village of Schaumburg Planning Department. *Village of Schaumburg 1996 Comprehensive Plan.* Schaumburg: Village of Schaumburg, 1996. Retrieved Oct. 24, 2017. http://www.villageofschaumburg.com/civicax/filebank/blobdload.aspx?BlobID=22844



Furthermore, in 2008, the Village adopted a Comprehensive Green Action Plan (C GAP), which focuses on programs that will strengthen the Village's commitment to the environment. It addresses setting a CO2 baseline, land use and transportation policies, green power, energy efficiency, green buildings, water management and conservation, recycling and waste reduction, education and outreach, and funding opportunities.

Stone Park (Cook Co.)

The Village of Stone Park does not have a comprehensive plan or other relevant plans.

Villa Park (DuPage Co.)

The Village of Villa Park updated its Comprehensive Plan in 2009.¹¹⁰ The Plan addresses land use, transportation, community facilities and utilities, economic development, and historic preservation. The Village's residential areas are well-established, so infill development and rehabilitation is recommended in these areas. The Plan recommends transit-oriented, mixed-use development near the Village's Metra station, business districts, and commercial corridors. The Plan also contains Special Corridor Plans pertaining to specific areas in the Village – North Avenue Corridor, St. Charles Road Corridor, and Roosevelt Road Corridor – which involve recommendations for enhancing existing commercial/retail business, mixed-use development, and streetscaping.

Villa Park recognizes the importance of promoting alternative modes of transportation to reduce greenhouse gas emissions. Nonetheless, the Plan does recommend roadway improvements to improve traffic flow, such as opening up Madison Street to IL-83 and the use of roundabouts. Metra provides service to Villa Park on its Union Pacific West Line, are there are three fixed Pace bus routes through the Village. The Plan promotes public transit investments, service expansions, and other transportation alternatives (e.g., a trolley). There are also three significant pedestrian/bike paths: the Great Western Trail, the Illinois Prairie Path, and the Salt Creek Greenway Trail. The Plan recommends developing a comprehensive path network that connects major activity nodes and traverses all major neighborhoods, which would consist of on- and off-street routes, bike racks, signage, lighting, and crossings. The Plan also encourages complete streets for all streets in the Village.

There is not a separate chapter dedicated to open space and natural resources, but the Plan proposes some innovative initiatives. Major parks include Lions Park, Lufkin Park, Rotary Park, and Twin Lakes Park. However, the Village recognizes that more open space needs to be allotted in the future to meet the recreational needs of residents. Therefore, the Plan recommends creating an interconnected system of parks and public green spaces. The Plan encourages that Village Park be a "sustainable community," which includes being considerate of the environment. In addition, the Plan encourages protecting environmentally sensitive lands and natural resources in the Village, which include ponds, streams, wetlands, and

¹¹⁰ Teska Associates, Business Districts, Inc. *Villa Park Comprehensive Plan Update 2009*. Villa Park: Village of Villa Park, 2009. Retrieved Oct. 24, 2017. <u>http://www.teskaassociates.com/villapark/documents/Cover.pdf</u>



floodplains. This can be accomplished by establishing open space buffers around waterbodies, restricting new development in wetlands and floodplains, creating green corridors/linkages among these areas, and expanding existing parks and establishing new ones. The Comprehensive Plan notes that Villa Park adopted the DuPage County Stormwater Ordinance and is working to correct stormwater drainage problems in redevelopment. The Plan encourages the use of street trees and ecologically sustainable landscaping along public rights-of way and permeable paving for all new alleys, sidewalks, and parking lots. Other sustainable initiatives that the Village sets forth include utilizing LEED standards, retrofitting in building design and construction, and setting targets and strategies for becoming carbon neutral.

Westchester (Cook Co.)

The Village of Westchester updated its Comprehensive Plan in 2014.¹¹¹ The Plan lays out the Village's vision for future land use, transportation, and the natural environment. It encourages mixed-use development in retail districts to create more compact, walkable, and attractive areas. Mixed-use developments will also provide a greater variety of housing options that help retain existing residents and attract new ones. In addition, the Plan supports development of infill sites which require minimal infrastructure investments, do not strain municipal services, and have a low environmental footprint.

The Plan supports a multi-modal transportation system that enables the daily use of transit, bicycling, and walking. Although it provides recommendations for improved vehicular conditions, including traffic-calming features and street rehabilitation, the Plan also recommends enhancing existing Pace and Metra transit services. In addition, the Plan recommends creating better bike connections throughout the Village and expanding current bike infrastructure. Furthermore, the Plan supports developing ordinances that serve to protect pedestrians and bicyclists, along with implementing several initiatives such as Safe Routes to School and Safe Routes for Seniors.

Flooding is a major concern in Westchester. Two areas in Westchester are within the 100-year floodplain: residential areas on the north side along Addison Creek and a tributary of Salt Creek a few blocks north of 31st Street. The Plan recommends implementing best management practices to reduce stormwater runoff including bioswales, pervious pavements, and rain barrels. Nearly a quarter of the community is dedicated to open space. However, access to open space and the distribution of open space throughout the community are key issues. The Plan recommends creating a parks and open space master plan to help address such issues and identify opportunities for creating additional open space.

¹¹¹ CMAP. *Village of Westchester Comprehensive Plan*. Westchester: Village of Westchester, 2014. Retrieved Oct. 24, 2017. <u>http://www.westchester-il.org/DocumentCenter/View/1655</u>



Western Springs (Cook Co.)

The Village of Western Springs updated its Comprehensive Land Use Plan in 2003.¹¹² The Plan provides recommendations for land use, transportation, and community facilities. The Village is mostly built out, so "any significant land use changes will likely occur as redevelopment of already developed areas." Although the Village strives to maintain its character as a single family residential community, the Plan does encourage higher density, mixed-use development by recommending the development of housing in the upper story units in the downtown area. The Plan contains a subarea plan for the downtown which addresses: 1) the geographic configuration and extent of the downtown commercial area, 2) land use considerations, 3) off-street parking, 4) downtown design and aesthetics, and 5) two-family dwelling and municipal/institutional land uses extending east and west of the downtown area. It also provides land use recommendations for the Southern Unincorporated Area.

Regarding transportation, the Plan recommends street system improvements that address roadway conditions and increase safety and levels of service. The Village is a pedestrian friendly community, allowing for ease of walking and biking in most parts. The Plan encourages safe crossing points, additional bike routes and connections, and complete sidewalks to extend walkability to other parts of the Village. Lastly, the Village is well served by public transit and has access to Metra and Pace bus. Improvements to public transit include constructing a new commuter station, reconstructing commuter platforms, and constructing new underpasses under the BNSF/Metra railroad tracks.

Although the Village's parks are mentioned as part of the Community Facilities section, and the Plan recommends expanding open space as well as providing better connections to parks and open space (e.g., Bemis Woods Forest Preserve), there is no further discussion of natural or water resources.

Westmont (DuPage Co.)

The Village of Westmont updated its Comprehensive Plan in 2013.¹¹³ The Plan addresses land use, transportation, community facilities, and parks and open space. Westmont is nearly builtout, so the Plan encourages infill development or redevelopment. The Plan recommends mixed-use development in the downtown area to help foster an active downtown. Furthermore, the Plan contains four subarea plans (Ogden Avenue, Downtown, Naperville Road and Cass Avenue, and 63rd Street and Cass Avenue). Each subarea plan includes recommendations for land use, access, and image/identity.

The Plan not only aims to improve the safety and efficiency of vehicular movement within the Village, but it also supports establishing "a coordinated bicycle and pedestrian network that

¹¹³ Houseal Lavigne Associates, LLC. *Village of Westmont Comprehensive Plan.* Westmont: Village of Westmont, 2013. Retrieved Oct. 24, 2017. <u>http://www.westmont.illinois.gov/DocumentCenter/View/556</u>



¹¹² HNTB Corporation. *Comprehensive Land Use Plan Village of Western Springs, Illinois*. Western Springs: Village of Western Springs, 2003.

links neighborhoods, shopping areas, employment centers and community facilities." Infrastructure improvements to develop a bicycle and pedestrian network include connecting local paths to the Southern DuPage County Regional Trail, expanding existing trails and sidewalks, bike lanes, streetscaping, and safety improvements. The Village has access to the BNSF and Pace bus service, and the Plan recommends improvements to public transit to ensure that it continues to serve the community. Such recommendations include coordinated scheduling and employer incentives for transit use.

The Plan's Parks, Open Space, and Environmental features section addresses many elements. The Village supports the Westchester Park District in creating a comprehensive parks and open space master plan and aims to work with the Park District to identify potential park locations in underserved areas. The Plan also encourages preservation of the natural environment, including water quality, and that the impact of new development on natural resources be minimized. There are four drainage watersheds within the Village, including Salt Creek. To protect these watersheds, the Plan encourages infiltration-based hydrology and stormwater management practices. The Plan also suggests that the Village works with property owners and developers to minimize the amount of impervious surface created by new development and to protect environmentally sensitive areas (e.g., floodplains, wetlands, and mature tree stands). Lastly, the Plan encourages that the Village use local infrastructure as a tool for environmental conservation by promoting green infrastructure, sustainable design, and best management practices (BMPs) to address flooding.

In addition, The Village adopted a Stormwater Master Plan in 2009. The Stormwater Master Plan addresses the four main watershed regions in the Village and identifies flooding sources and stormwater infrastructure inadequacies. Based on evaluation, the Stormwater Master Plan recommends solutions for each of the four watershed areas.

Wood Dale (Cook Co.)

The City of Wood Dale updated its Comprehensive Plan in 1997.¹¹⁴ The Plan focuses heavily on development and traffic management. Wood Dale is a mature community, so new development is limited. The Plan promotes development of vacant, buildable land but also redevelopment of underutilized properties in commercial and residential areas. It encourages mixed-use development in the town center "to provide higher density housing, local shopping, entertainment and civic and cultural activities in a unified, pedestrian oriented environment." In addition, the Plan contains a Special Areas Plan for the town center and Irving Park Road.

The City recognizes air quality as a major environmental issue and the need to provide pedestrian and bicycle routes as a way to address this issue. Recommendations for improved pedestrian and bicycle conditions include safety measures including mid-block crossings, flashing caution lights, and continuous sidewalks. The Plan does also recommend road

¹¹⁴ Teska Associates, Inc. *Wood Dale Comprehensive Plan Update*. Wood Dale: Village of Wood Dale, 1997. Retrieved Oct. 24, 2017. <u>http://www.wooddale.com/home/showdocument?id=1260</u>



widening in some places – Wood Dale Road and Elizabeth Drive – to allow for better vehicle traffic flow. Regarding public transportation, the Plan recommends contacting Pace regarding service area expansion.

The Plan does not contain a section dedicated to environmental features, but it encourages preservation of environmentally sensitive lands, which include wetlands, floodplains, woodlands, and prairies. The Plan supports enhancing the Salt Creek corridor with flood control features and landscaping to create a high quality greenway and recreational area. It also supports limiting development in floodplain areas. Furthermore, the Plan recommends establishing additional stormwater management facilities, but green infrastructure is not included as a recommended practice. Lastly, the City has an identity as a "tree" community; the Plan calls for a city-wide tree maintenance and planting program.

In 2003, the City adopted a Comprehensive Plan Supplement which provides a vision for future land use, redevelopment, and physical enhancement of property along the City's major corridors of Irving Park Road and north Wood Dale Road. Changing conditions warranted reevaluation of certain land use policies and redevelopment objectives. The Supplement encourages mixed use, transit-oriented development along the study corridor, which is consistent with the 1997 Comprehensive Plan, as well as redevelopment of incompatible industrial sites and improved pedestrian circulation. Salt Creek passes through the study area, but the Supplement provides no recommendations pertaining to it. Along West Irving Park Road, the Supplement encourages increasing the visibility of Salt Creek by improving the floodplain as a natural feature and public amenity. The Supplement also establishes an economic development strategy and capital improvement projects to implement its recommendations.

Cook County

In January 2015, Cook County released Planning for Progress: Cook County's Consolidated Plan and Comprehensive Economic Development Strategy, 2015-2019.¹¹⁵ The Plan is the County's strategic plan to marshal existing funds, gather resources, and facilitate partnerships to meet future housing, community, and economic development needs. The Plan largely focuses on infrastructure, business, housing development, transportation, and services.

Furthermore, the County adopted a Hazard Mitigation Plan¹¹⁶ in 2014, which addresses flooding. According to the Plan, a hazard flooding event is likely to occur within 25 years, impacting people, property, and the economy. The Plan contains a detailed list of mitigation measures that fall into four categories: manipulating the hazard, reducing exposure, reducing

¹¹⁶ Tetra Tech. *Cook County Multi-Jurisdictional Hazard Mitigation Plan*. Cook County, 2014. Retrieved February 2017. <u>https://www.cookcountyhomelandsecurity.org/sites/default/files/images/CookCountyHMP_Vol1-Final-11-06-14small.pdf</u>



¹¹⁵ CMAP. Planning for Progress: Cook County's Consolidated Plan and Comprehensive Economic Development Strategy, 2015-19. Cook County, 2015. Retrieved February 2017. <u>http://www.cmap.illinois.gov/documents/10180/113208/FY15-0058+PLANNING+FOR+PROGRESS+PLAN+013015.pdf/db94bec0-4cab-42ca-ab91-3600d80ab7a7</u>

vulnerability, and increasing response capability. Manipulating the hazard includes implementing structural flood controls (e.g., levees) and low-impact development. Reducing exposure involves locating critical facilities outside the hazard area and maintaining or acquiring open space. Reducing vulnerability involves improvements in infrastructure. Lastly, increasing response capability includes producing better hazard maps, developing a public information strategy, and enforcing the National Flood Insurance Program.

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) first adopted in 2007 and amended in 2014 a countywide Stormwater Management Plan¹¹⁷ which provides the framework for a consolidated county stormwater management program and presents the management plan. Watershed Planning Councils (WPCs) were established for each of the major watersheds in the county, including Upper Salt Creek and the Lower Des Plaines River which include portions of the Lower Salt Creek Watershed planning area addressed in this watershed-based plan. The WPCs provided input to the Detailed Watershed Plans (DWPs) that were developed for each major watershed and to the countywide Watershed Management Ordinance (described elsewhere in this plan). The DWPs identify numerous stormwater improvement projects intended to address regional problem areas along waterways (included in sections addressing BMPs elsewhere in this plan).

Forest Preserves of Cook County

The Forest Preserves of Cook County (FPCC) has a Natural and Cultural Resources Master Plan,¹¹⁸ adopted in 2014, which details the elements, threats, and future goals for preserving the County's designated forest preserves. The FPCC aims to maintain and restore the health of the County's waterways by working with various organizations (e.g., MWRD, Openlands, and Friends of the Chicago River) and creating opportunities for volunteer cleanups. In addition, the FPCC supports the Green Infrastructure Vision of a healthy, connected network of natural areas, which provide clean air, clean water, flood control, and recreation. Furthermore, the Plan recognizes the need to address water quality issues from stormwater runoff to protect habitats. Stormwater runoff is one of the primary issues facing the Forest Preserves of Cook County and it is a major source of water pollution. Dam removal and erosion control measures are recognized as two methods to improve water quality. Preserving open, natural areas will also help to improve water quality by absorbing excess flood water.

https://www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/protecting_the_environment/Stormwater_Manag_ement/Pdfs/CCSMP/Entire_Document/CCSMP.pdf

¹¹⁸ Prairie Research Institute. *Natural and Cultural Resources Master Plan for the Forest Preserves of Cook County*. Cook County, 2014. Retrieved February 2017. <u>http://fpdcc.com/downloads/plans/FPCC-Natural-Cultural-Resources-Master-Plan 3-9-15 WEB.pdf</u>



¹¹⁷ Metropolitan Water Reclamation District of Greater Chicago. *Cook County Stormwater Management Plan.* MWRD, 2014. Retrieved February 2017.

DuPage County

DuPage County adopted a Land Use Plan in 1990.¹¹⁹ Its main focus is on development and it contains various draft plan maps for clusters, along with data tables with details of each site within these clusters. The Plan does contain a land use map depicting open space and it also contains a policy calling for the protection of environmentally sensitive areas (including floodplains and wetlands), but it does not contain a separate parks and open space or natural resources section.

DuPage County's Stormwater Management Plan, ¹²⁰ adopted in 1989, sets minimum countywide standards for floodplain and stormwater management. The Plan has six guiding principles, including:

- 1. Reduce the existing potential for stormwater damage to public health, safety, life and property.
- 2. Control future increases in stormwater damage within DuPage County and in areas of adjacent counties affected by DuPage County drainage.
- 3. Protect and enhance the quality, quantity and availability of surface and groundwater resources.
- 4. Preserve and enhance existing aquatic and riparian environments and encourage restoration of degraded areas.
- 5. Control sediment and erosion in and from drainage ways, developments and construction sites.
- 6. Promote equitable, acceptable and legal measures for stormwater management.

In addition, the County adopted a Stormwater and Flood Plain Ordinance in 2013.¹²¹ Ordinance information can be found in Sections 3.6.2 and 3.7.2.1.

In 2001, the County developed the Salt Creek Greenway Master Plan.¹²² The Salt Creek Greenway Trail is a regional pedestrian/bicycle trail nearly 25 miles long that runs parallel to the Creek. It passes through the communities of Elk Grove Village, Itasca, Wood Dale, Villa Park, Oakbrook Terrace, Oak Brook, La Grange Park, Westchester, North Riverside, Brookfield, Riverside, Lyons, and Hinsdale. It also passes through portions of unincorporated Addison and



¹¹⁹ DuPage County Development Department Planning Division. *Unincorporated DuPage County Land Use Plan*. DuPage County, 1990. Provided February 2017 by DuPage County Zoning Administrative Coordinator.

¹²⁰ DuPage County Stormwater Management Committee. *DuPage County Stormwater Management Plan*. DuPage County, 1989. Retrieved February 2017 from <u>http://dupageco.org/EDP/Stormwater Management/1163/</u>

¹²² Forest Preserve District of DuPage County. *Salt Creek Greenway Master Plan.* DuPage County, 2001. Retrieved February 2017 from <u>https://www.dupageco.org/EDP/Bikeways and Trails/29856/</u>

York Townships. The Greenway was intended to improve connectivity between municipalities as well as protect the lands surrounding Salt Creek from development.

Furthermore, in 2006, DuPage County adopted an Environmental Policy¹²³ to provide guidelines for improving environmental quality. The Policy provides recommendations for air quality, land management and uses, water quality, and energy use. The County's Environmental Commission is tasked with periodically reviewing the County's sustainability efforts and identifying new areas for consideration.

DuPage County Forest Preserve District

The DuPage County Forest Preserve District has a Strategic Plan (2014), ¹²⁴ but it focuses on the organization and operations of the District rather than natural resource elements and preservation.

Greenest Region Compact (GRC)

The Greenest Region Compact (GRC1), launched in 2007 by the Metropolitan Mayors Caucus, introduced coordinated municipal sustainability efforts to the region. The Greenest Region Compact 2 (GRC2) and associated resource document, the GRC Framework, were launched in 2016 as an update to the original Compact. Together the Compact and Framework serve as a comprehensive sustainability guide to coordinate community efforts across the region.¹²⁵ They are based on a study of 30 local and nine regional or national sustainability plans along with 95 environmental achievements commonly undertaken by municipalities. Forty-nine consensus sustainability goals were extracted from these plans and achievements to create the Compact. The goals pertain to climate, economic development, energy, land, leadership, mobility, municipal operations, sustainable communities, waste and recycling, and water. The detailed Framework provides possible objectives and strategies from which a municipality can create a plan tailored to its needs.

A table can be found in Appendix E which shows the environmental achievements documented between 2007-2014 for the municipalities and counties within the Lower Salt Creek watershed within the five GRC categories that were reviewed for the purposes of this watershed plan: water, land, climate, sustainable communities, and waste and recycling in 66 elements. Not all of the achievements relate to the watershed plan, so 29 of the elements, such as those related to energy, were excluded. This analysis reveals that every municipality and both counties have untaken at least some actions to support sustainability goals. Schaumburg and Elmhurst achieved the most, by measures surveyed (25 of the 66 elements in the five categories

¹²⁵ <u>http://mayorscaucus.org/initiatives/environment/rec/</u>



¹²³ DuPage County Environmental Commission. *Environmental Policy for DuPage County*. DuPage County, 2006. Retrieved February 2017 from <u>https://www.dupageco.org/EDP/Waste_Recycling_and_Energy/1539/</u>

¹²⁴ Forest Preserve District of DuPage County. *Strategic Plan 2014*. Forest Preserve District of DuPage County, 2014. Retrieved February 2017 from <u>https://cdn2.hubspot.net/hubfs/2920355/About/Documents/Mission-Vision/Strategic-Plan-2014.pdf</u>

reviewed), and many municipalities addressed between ten and 20 elements. On a watershedwide basis, access to parks/open space, park development grants, Tree City USA designation, water conservation education, water metering, and curbside recycling were among the most cited elements.

Several communities within the Lower Salt Creek planning area have taken the additional step of formally adopting the GRC1 and/or GRC2 through resolution (Table 51).

GRC1 A	dopters	GRC2 Adopters				
Addison	Addison Northlake		Northlake			
Bloomingdale	Oak Brook	Franklin Park	Oak Brook			
Brookfield	Brookfield Oak Brook Terrace		Schaumburg			
Hinsdale	Hinsdale Roselle		Westchester			
Itasca	Itasca Schaumburg		Westmont			
LaGrange Park	LaGrange Park Villa Park					
Lombard	e					

Table 51. Greenest Region Compact adopters in the Lower Salt Creek planning area.

3.6.2 Local Ordinances

Through ordinances and codes, communities implement the vision established in their comprehensive plans by establishing detailed, enforceable regulations. Zoning is the most common ordinance that municipalities and counties use to direct land use, transportation, and development practices, with many also using subdivision, stormwater, water use, and parking ordinances to regulate specific aspects of development. DuPage County and several municipalities were asked to complete a questionnaire assessing the extent to which their ordinances address issues relevant to water quality and natural resources. The questionnaire asked whether current codes fully, mostly, minimally, or do not address particular aspects of stormwater drainage and detention, soil erosion and sediment control, floodplain management, stream and wetland protection, natural areas and open space, conservation design, landscaping, transportation, parking, water efficiency and conservation, and pollution prevention.



DuPage County

DuPage County's ordinances, codes, and standards within their Countywide Stormwater and Flood Plain Ordinance¹²⁶, BMP Manual¹²⁷, Building Code¹²⁸, Zoning Ordinance and Subdivision Regulations¹²⁹, Water Supply and Distribution and Wastewater Treatment Ordinance¹³⁰, and Health Codes¹³¹ address a broad range of water quality and hydrologic topics.

The principal purpose of the Stormwater and Flood Plain Ordinance is to promote effective, equitable, acceptable, and legal stormwater management measures. Other purposes of the Ordinance include preventing the further degradation of the quality of ground and surface waters, requiring appropriate and adequate provision for site runoff control, especially when the land is developed for human activity, requiring the design and evaluation of each site runoff control plan consistent with watershed capacities, and encouraging the use of stormwater storage in preference to stormwater conveyance. The Ordinance imposes some restrictions on floodplain development, addresses a range of important soil erosion and sediment control issues, incorporates riparian mitigation into wetland buffer requirements, amends the thresholds for post construction best management practices (PCBMPs) to correlate directly with changes in impervious area, and includes volume control BMP requirements on development sites to promote runoff reduction, groundwater recharge, water quality.

The Zoning Ordinance stands out in its parking codes, allowing flexibility and requiring numerous beneficial standards that reduce impervious cover.

Various aspects of the County's ordinances could be strengthened to encourage additional best practices. For example, DuPage County's current codes don't require a site analysis map that includes a natural resource inventory for new or infill development, nor do they encourage or require reduction of imperviousness in the street network. DuPage County's completed ordinance questionnaire is provided for reference in Appendix F.

Lombard

The Village of Lombard uses the DuPage Countywide Stormwater and Flood Plain Ordinance, which addresses a broad range of water quality and hydrologic topics (see above). Lombard's amendments to the County Stormwater Ordinance include:



¹²⁶ <u>http://www.dupageco.org/EDP/Stormwater_Management/Regulatory_Services/1420/</u>

¹²⁷ https://www.dupageco.org/EDP/Stormwater_Management/Water_Quality/1424/

¹²⁸ https://www.dupageco.org/EDP/Building_Permitting/9652/

¹²⁹ <u>https://www.dupageco.org/zoning/</u>

¹³⁰ <u>https://www.dupageco.org/Public_Works/1384/</u>

¹³¹ <u>http://www.dupagehealth.org/health-codes</u>

- requiring detention for new development that increases the total impervious area by more than 5000 square feet, and
- requiring a swale, drain, or dry well on a single family residential lot if the total impervious area is being increased by more than 500 square feet, if the lot is not already part of a major subdivision with a stormwater detention facility.

The Village's ordinances¹³² also contain numerous provisions to support natural areas and open space, promote natural landscaping, and conserve water. But, the ordinances contain few measures related to conservation design and infill, transportation, parking, or pollution prevention. The adoption of transportation and parking requirements would further help reduce total impervious area within the community and greater watershed.

Villa Park

The Village of Villa Park uses the DuPage Countywide Stormwater and Flood Plain Ordinance, which addresses a broad range of water quality and hydrologic topics (see above). Villa Park's amendment to the Ordinance requires a storm sewer or defined watercourse, then perforated drain tiles, storm drains, dry wells, or other best management practices (BMP's) approved by the Village when there is less than a continuous 1% minimum slope from the new impervious area. Soil erosion and sedimentation are also addressed in Village's zoning ordinance.

Outside of these topics, the Village's ordinances¹³³ could be strengthened to encourage additional best practices for the watershed. Villa Park's current codes do not address stormwater discharge into wetlands, detention design requirements, stream and wetland restoration, conservation design, natural areas and open space management, water reuse, and pollution prevention.

¹³³ <u>http://www.invillapark.com/239/Code-of-Ordinances (accessed December 2017)</u>



¹³² http://www.villageoflombard.org/3747/Village-Code-of-Ordinances (accessed December 2017)

3.6.3 Conservation Easement Programs

A conservation easement is a land protection tool that allows private and public property owners to preserve their land from inadvertent or intentional destruction of desired natural, scenic, historic, or agricultural characteristics. Restrictions placed in a conservation easement are tailored to each property and situation. For example, the easement may require the land to remain in a natural, undisturbed condition or it may allow some limited use, such as farming or timber management. Easements can be placed on all or a portion of a landowner's property. For example, a stream and a prairie buffer along it could be specified in the easement, thereby allowing the remainder of the property to be developed. A conservation easement is permanent and is recorded like any other title interest, and stays with the land when it is transferred by sale, gift, or bequeath. A conservation easement may provide income, estate, and/or property tax benefits as well.¹³⁴ Conservation easements are typically not open to the public. Entering an area that is not open to the public subjects an individual to possible sanctions for trespass.

Organizations with which Lower Salt Creek planning area landowners can work to establish conservation easements include The Conservation Foundation (TCF), the Natural Land Institute, and the Illinois Nature Preserves Commission (INPC). Where there are high quality natural areas and habitats of endangered or threatened species, dedication or registration of such lands as an Illinois Nature Preserve, Land and Water Reserve, or Illinois natural heritage landmark can be made through the INPC.

Data from the National Conservation Easement Database indicate that there are 15.7 acres of land preserved through conservation easements within the Lower Salt Creek planning area. These easements are listed in Table 52; all are held by the Forest Preserve District of DuPage County (FPDDC). All conservation easements in the planning area are closed to the public.

Site Name	Owner	Easement Holder	GIS Acres
Cricket Creek	Private	FPDDC	0.6
Cricket Creek	Private	FPDDC	0.4
Salt Creek Marsh	Private	FPDDC	3.0
Salt Creek Greenway	Private	FPDDC	1.2
Salt Creek Greenway	Private	FPDDC	0.1
Westmont Park District	Private	FPDDC	5.0
Wood Dale Grove	Private	FPDDC	4.0
Fullersburg Woods	Private	FPDDC	0.5
Songbird Slough Forest Preserve	Private	FPDDC	1.0

Table 52. Conservation easements in the Lower Salt Creek planning area.

¹³⁴ "Conservation Easements," The Land Conservancy of McHenry County, accessed February 14, 2017, http://www.conservemc.org/what-we-do/preserve-land/conservation-easements



3.6.4 Road Maintenance Jurisdictions

While public roads are an essential component of the built environment, a significant amount of polluted stormwater runs off these surfaces and is conveyed along transportation corridors, either through underground stormwater conveyances or road side ditches. The vehicles that travel these roads are one source of pollutants (e.g., petroleum products, tire dust, heavy metals, etc.), as are winter deicing materials, most notably chlorides in road salt. Higher traffic volumes generally increase the amount of pollutants generated from public roads and also increase the likelihood of more intense winter maintenance activities (e.g., plowing and salting). A particular concern to surface waters and roadside vegetation is chlorides in road salt, due to its adverse impacts on aquatic organisms and both terrestrial and aquatic plant community composition.

There are approximately 3,308 lane miles (1,392 road miles) within the Lower Salt Creek Watershed (Table 53, Figure 66). The traffic volumes of these roadways vary, as does the maintenance and pollutant loads generated. In addition to these public roadways, many other public and private entities maintain a vast network of roads, parking lots, sidewalks, and driveways.

Sul	owatershed	Lane Miles by Maintenance Jurisdiction									
#	Name	IL Div. of Highways	County	Municipal	Private (incl. Toll Authority)	Twp. or Road Dist.	Totals				
1	Salt Crk North	11.85	33.48	154.66	0	6.62	206.61				
2	Salt Crk Central	63.42	10.69	381.16	0	10.74	466.01				
3	Salt Crk South	57.31	12.80	115.41	39.62	17.16	242.30				
4	Salt Crk Southeast	83.19	11.67	338.75	34.26	5.86	473.73				
5	Devon Ave. Trib.	32.34	13.51	69.84	3.37	1.32	120.38				
6	Spring Brook Crk	89.06	35.7	223.62	0.76	58.11	407.25				
7	Westwood Crk	44.64	3.05	117.43	1.04	12.27	178.43				
8	Sugar Crk	16.34	2.07	79.13	0	26.28	123.82				
9	Oak Brook Trib.	6.81	3.74	15.69	0	3.49	29.73				
10	Ginger Crk	28.15	25.63	97.28	23.26	7.36	181.68				
11	Bronswood Trib.	18.46	3.3	56.07	0	4.81	82.64				
12	Addison Crk North	29.33	5.15	77.01	6.61	21.43	139.53				
13	Addison Crk Central	97.54	10.26	306.93	21.55	7.61	443.89				
14	Addison Crk South	68.59	3.16	137.77	0.18	1.82	211.52				
	Totals	647.03	174.21	2,170.75	130.65	184.88	3,307.52				

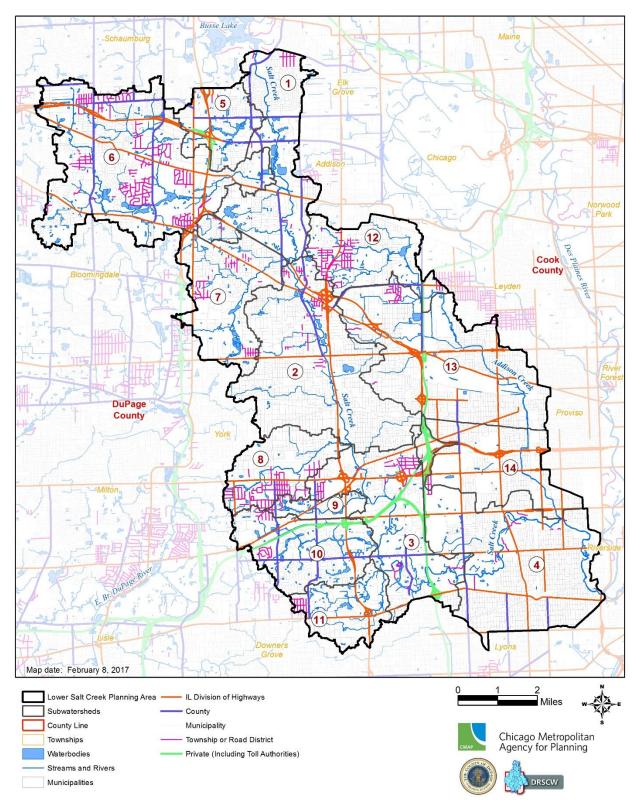
Table 53. Lane miles by road maintenance jurisdiction in the Lower Salt Creek planning area.

Typical roadway maintenance activities include street sweeping and catch basin cleaning; road surface maintenance; underground stormwater infrastructure repair, surface drainage (ditch) maintenance, roadside grass and weed control, and litter and road kill removal. These maintenance activities can help reduce and control the amount of pollutants, such as sediment



and associated metals and nutrients, which are carried with stormwater. Routine street sweeping and catch basin cleaning are particularly important maintenance activities that remove pollutants that accumulate on public roads and in the stormwater conveyance systems before reaching nearby surface waters.





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Figure 66. Roads by maintenance jurisdiction in the Lower Salt Creek planning area.



3.6.5 Community Water Supply Wells, Setbacks, and Groundwater Restricted Use Areas

Municipalities or counties served by community water systems (CWS) are subject to the Illinois Groundwater Protection Act (IGPA; P.A. 85-0863).¹³⁵ Presently, 18 of the municipalities within the Lower Salt Creek Watershed planning area have CWS wells. Collectively, there are 89 CWS wells with 16 located in unincorporated areas. Municipalities with the most wells are the Village of Addison with eight, and Oak Brook and Wood Dale each with seven. Elmhurst and Villa Park each have six wells, and the Village of Roselle and Village of Bellwood each have five wells (Table 54, Figure 67).

Of the 89 wells that existing in the watershed planning area, 45 have been abandoned, eight are inactive, and two are proposed. The two proposed wells are for the North Regional Water Facility (North) and the York Township Water System (South). The remaining 37 wells are active, presumably for emergency backup, which is the case for the Village of Addison. Wells that are maintained for emergency backup are required to comply with EPA's water supply standards.

The IGPA requires that a minimum setback zone be established around all CWS wells in order to minimize aquifer contamination potential by restricting certain land-use activities. The setback zone is set depending on the sensitivity of the aquifer to possible contamination, either a minimum of a 200 foot radius for wells finished within a confined aquifer or a 400 foot radius for wells finished within an unconfined aquifer (Table 54, Figure 67).¹³⁶

The IGPA also establishes a two-phase wellhead protection program for enhanced groundwater protection. Phase I establishes a 1,000 setback zone around community and non-community water supply wells. Phase II delineates a 5-year recharge area for the CWS well extending beyond 1000 feet of an existing wellhead protection area. Wellhead protection areas are not regulated and are used for educational purposes.¹³⁷ In the Lower Salt Creek planning area, neither Phase I or Phase II setback zones have been established (Figure 67).

¹³⁷ IEPA. "The Illinois Wellhead Protection Program Pursuant to Section 1428 of the Federal Safe Drinking Water Act SDWA," State of Illinois



¹³⁵ Illinois General Assembly, Illinois Groundwater Protection Act (IGPA; P.A. 85-0863), <u>http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1595&ChapterID=36</u>, (accessed December 1, 2014).

¹³⁶ IEPA. "IGPA Maximum Setback Zones Community Water Supply Groundwater Quality Protection," <u>http://www.epa.state.il.us/water/groundwater/maximum-setback-zones/</u> (accessed December 1, 2014).

Municipality		# CWS Wells	# of aquifer wells with no setback	# of confined aquifer wells (200 ft. setback)	# of unconfined aquifer wells (400 ft. setback)
Addison		8	2	6	
Bellwood		5	2	3	
Bensenville		1		1	
Bloomingdale		2	1	1	
Elk Grove Village		3		3	
Elmhurst		6	6		
Hinsdale		3	2	1	
Itasca		4	2	2	
La Grange		2	2		
Lombard		4	1	3	
Oak Brook		7	4	3	
Oakbrook Terrace		2		2	
Roselle		5	4	1	
Schaumburg		2	1	1	
Villa Park		6	4	2	
Western Springs		2		1	1
Westmont		4	3	1	
Wood Dale		7	2	4	1
Unincorporated		16	6	9	1
	Totals	89	42	44	3

Table 54. Number of community water supply wells in the Lower Salt Creek planning area.

However, under 35 Ill. Adm. Code 742, municipalities have enacted groundwater ordinances to restrict the use of establishing new potable water supply wells that go through IEPA's review process. Groundwater restricted use boundaries also specify where new CWS wells are prohibited by local ordinance(s) because of the possible presence of groundwater contamination. However, it is possible that private potable water supply wells established prior to the ordinance adoption may still be operating in these areas.¹³⁸

¹³⁸ Illinois General Assembly, Part 742 - Tiered Approach to Corrective Action Objectives, <u>ftp://www.ilga.gov/JCAR/AdminCode/035/035007420B02000R.html</u> (accessed October 27, 2016).



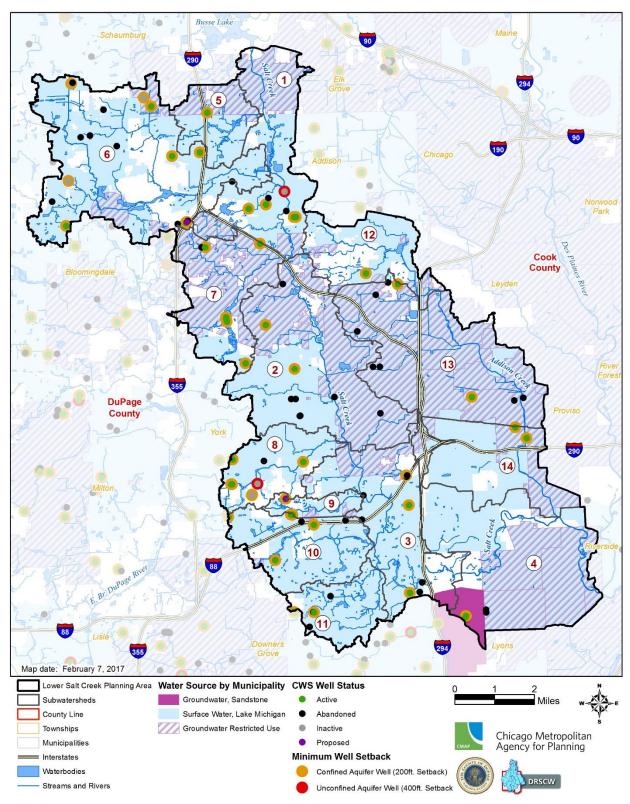


Figure 67. Community water supply wells and groundwater restricted use areas in the Lower Salt Creek planning area.



Chicago Metropolitan Agency for Planning

Lower Salt Creek Watershed-Based Plan

3.7 Pollutant Sources

3.7.1 Nonpoint Sources

Addressing designated-use impairments within the planning area is one of the primary reasons for developing this watershed plan. Another reason is to protect good water quality and designated-use attainment where present in the planning area. Section 3.5.5, Surface Water Quality, provides specific assessment information for streams and lakes in the Lower Salt Creek planning area as assessed by Illinois EPA and published in their 2016 Integrated Report, as well as a summary of DRSCW stream studies.

In addition to the causes and sources of impairments identified by Illinois EPA in the 2016 Integrated Report, there are numerous other potential causes of impairment and sources of pollution impacting water resources in the Lower Salt Creek watershed (Table 55). Recommendations made to mitigate and protect water quality from nonpoint source pollution will both yield local benefits and help improve water quality in Salt Creek, its tributaries, local lakes, and the Des Plaines River downstream.

Streams	
Causes of Impairment	Sources of Impairment
• Aldrin (79)	Atmospheric Deposition – Toxics (10)
• Alteration in streamside or littoral	Channelization (20)
vegetative covers (84)	Combined Sewer Overflows (23)
Arsenic (96)	Contaminated Sediments (28)
Chloride (138)	Impacts from Hydrostructure Flow Regulation/modification
• Chromium (total) (154)	(58)
• Copper (163)	Loss of Riparian Habitat (72)
• DDT (177)	Municipal (Urbanized High Density Area) (84)
• Debris/Floatables/Trash (181)	Municipal Point Source Discharges (85)
• Endrin (213)	• Sanitary Sewer Overflows (Collection System Failures) (115)
Heptachlor (244)	• Site Clearance (Land Development or Redevelopment) (122)
Hexachlorobenzene (246)	Streambank Modifications/destabilization (125)
Mercury (274)	Upstream Impoundments (132)
Methoxychlor (277)	• Source Unknown (140)
• Nickel (301)	Dam or Impoundment (142)
• Other flow regime alterations (319)	• Urban runoff / storm sewers (177)
 Oxygen, Dissolved (322) 	
• Polychlorinated biphenyls (348)	• Drainage/Filling/Loss of Wetlands (36)
 Sedimentation/Siltation (371) 	• Golf courses (45)
• Fecal coliform (400)	Highway/Road/Bridge Runoff (Non-construction Related) (49)
• Total Suspended Solids (TSS) (403)	• Highways, Roads, Bridges, Infrastructure (New Construction) (50)
• pH (441)	• Industrial Point Source Discharge (62)
Phosphorus (Total) (462)	• Spills from Trucks or Trains (124)
Cause Unknown (463)	• Surface Mining (127)

Table 55. Known and <i>potential</i> causes and sources of water pollution in the Lower Salt Creek
planning area.



 Bottom Deposits (471) Aquatic Algae (479) Changes in Stream Depth and Velocity Patterns (500) Visible Oil (519) Alterations in wetland habitats (85) Fish-Passage Barrier (228) Ammonia (Total) (308) Non-native Fish, Shellfish, or Zooplankton (313) Temperature, water (388) Nitrogen, Nitrate (452) Loss of Instream Cover (501) Polycyclic Aromatic Hydrocarbons (n/a) 	 Unpermitted Discharge (Domestic Wastes) (130) Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO) (135) Natural Sources (155) Habitat Modification - other than Hydromodification (157) Inappropriate Waste Disposal (160) Pesticide Application (161) Runoff from Forest/Grassland/Parkland (181)
Lakes	
Causes of Impairment	Sources of Impairment
 Sedimentation/Siltation (371) Aquatic Plants (Macrophytes) (478) Aquatic Algae (479) Phosphorus (Total) (462) Cause Unknown (463) Chloride (n/a) Debris/Floatables/Trash (181) Non-native Aquatic Plants (312) Non-native Fish, Shellfish, or Zooplankton (313) Oxygen, Dissolved (322) Polychlorinated biphenyls (348) Fecal Coliform (400) Total Suspended Solids (TSS) (403) Turbidity (413) pH (441) Nitrogen, Nitrate (452) Odor (520) Polycyclic Aromatic Hydrocarbons (n/a) 	 Contaminated Sediments (28) Littoral/shore Area Modifications (non-riverine) (71) Site Clearance (Land Development or Redevelopment) (122) Waterfowl (134) Source Unknown (140) Urban Runoff/Storm Sewers (177) Runoff from Forest/Grassland/Parkland (181) Atmospheric Deposition – Toxics (10) Golf courses (45) Highway/Road/Bridge Runoff (Non-construction Related) (49) Impacts from Hydrostructure Flow Regulation/modification (58) Internal Nutrient Recycling (65) Municipal (Urbanized High Density Area) (84) Other Turf Management (98) Residential Districts (111) Streambank [Shoreline] Modifications/destabilization (125) Wildlife Other than Waterfowl (136) Yard Maintenance (138) Natural Sources (155) Pesticide Application (161) Impervious Surface/Parking Lot Runoff (164) Unspecified Urban Stormwater (169) Introduction of Non-native Organisms (Accidental or Intentional) (180)



3.7.1.1 Nonpoint Source Pollutant Load Modeling¹³⁹

A critical step in providing recommendations within this plan is the identification of the different pollutant sources within the watershed and the relative magnitude of pollutant loads from those sources.

For nonpoint source pollution, an effective method to estimate pollutant loads at the watershed scale is to use variable watershed characteristics that can affect pollutant load contributions, such as land use, soils, etc. The U.S. Environmental Protection Agency's planning level tool, Spreadsheet Tool to Estimate Pollutant Loads (STEPL), was used to develop "existing conditions" nonpoint source pollutant load estimates for total nitrogen, total phosphorus, biological oxygen demand (BOD), and sediment within the Lower Salt Creek planning area.

One of the primary inputs to STEPL is land use information. The land use data used in the Lower Salt Creek watershed analysis was based on CMAP's 2013 land use data. STEPL allows for a detailed breakdown of the broader urban land use category into categories such as commercial, single-family residential, etc. to develop more refined pollutant load estimates based on variable pollutant concentrations in stormwater runoff from these land uses.

In an effort to further refine the pollutant load estimates for the watershed, the pollutant load estimates were developed at the subwatershed "study unit" level using delineated subwatershed boundaries, which separates the planning area into 14 subwatershed study units. Estimating the pollutant loads at the subwatershed level provides the opportunity to evaluate study units on a relative pollutant load contribution basis and to better target the recommendations included in this plan and in future planning efforts. The "existing conditions" nonpoint source pollutant load estimates, by subwatershed study unit, for nitrogen, phosphorus, biological oxygen demand (BOD), and sediment are shown in Table 56 and Figure 70 through Figure 73. Visual representations of the pollutant load estimates on a study unit basis are also illustrated in the accompanying figures. The pollutant load estimates are also presented by pollutant type and land use in Table 57 through Table 60 at the end of this section.

There are a few things to keep in mind regarding the use and capabilities of STEPL:

- STEPL does not account for drain tile contributions of pollutants.
- Pollutants from construction sites were not included in the analysis. Pollutant loads from construction sites can be highly variable and should be analyzed on a site-by-site basis and should be addressed through Illinois EPA's NPDES program for construction activities.
- It is important to recognize that STEPL is not an in-stream response model and only estimates watershed pollutant loading based on coarse data, such as event mean concentrations.

¹³⁹ STEPL modeling was conducted by DuPage County Stormwater Management and results provided via email correspondence to CMAP.



• STEPL is not calibrated. Additional monitoring data and a more sophisticated watershed loading model would be required to develop a calibrated model for the Lower Salt Creek watershed.

Nonetheless, STEPL serves as a useful planning-level tool for estimating relative contributions of different pollutant sources within the Lower Salt Creek watershed planning area.

Subwatershed		Nitrogen Load		Phosph	orus Load	BOD	Load	Sediment Load	
#	Name	lb/yr	lb/ac/yr	lb/yr	lb/ac/yr	lb/yr	lb/ac/yr	t/yr	t/ac/yr
1	Salt Crk North	33,780	6.9	5,362	1.1	117,784	24.0	805	0.16
2	Salt Crk Central	60,129	7.6	9,882	1.2	216,803	27.4	1,432	0.18
3	Salt Crk South	33,127	6.6	5,034	1.0	120,141	23.8	765	0.15
4	Salt Crk Southeast	60,988	7.6	9,808	1.2	218,961	27.4	1,438	0.18
5	Devon Ave. Trib.	17,938	8.9	2,849	1.4	63,710	31.5	425	0.21
6	Spring Brook Crk	65,470	6.9	10,501	1.1	232,521	24.6	1,555	0.16
7	Westwood Crk	28,960	7.6	4,634	1.2	103,285	27.2	687	0.18
8	Sugar Crk	17,347	6.7	2,813	1.1	65,977	25.3	399	0.15
9	Oak Brook Trib.	5,641	7.4	772	1.0	22,225	29.2	123	0.16
10	Ginger Crk	23,738	6.9	3,664	1.1	90,174	26.3	544	0.16
11	Bronswood Trib.	13,108	6.3	2,006	1.0	49,234	23.6	300	0.14
12	Addison Crk North	20,132	6.6	3,225	1.1	70,731	23.3	479	0.16
13	Addison Crk Cntral	75,854	9.9	12,434	1.6	268,947	35.0	1,808	0.24
14	Addison Crk South	33,703	9.2	5,523	1.5	124,058	33.7	782	0.21
	Totals	489,915	105.1	78,507	16.6	1,764,551	382.3	11,542	2.44

Table 56. Land use-based nonpoint source (NPS) pollutant load estimates by subwatershed in the Lower Salt Creek planning area.



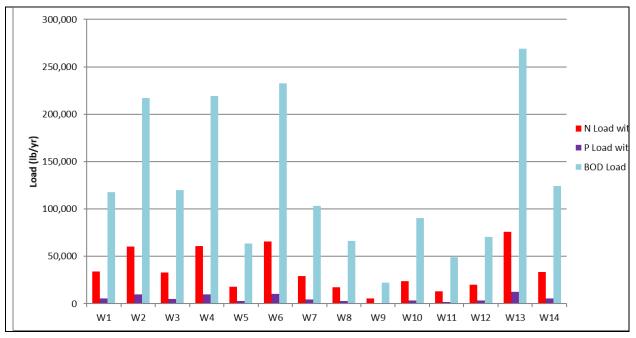


Figure 68. Average annual total nitrogen (N), total phosphorus (P), and biological oxygen demand (BOD) load (pounds/year) by subwatershed.

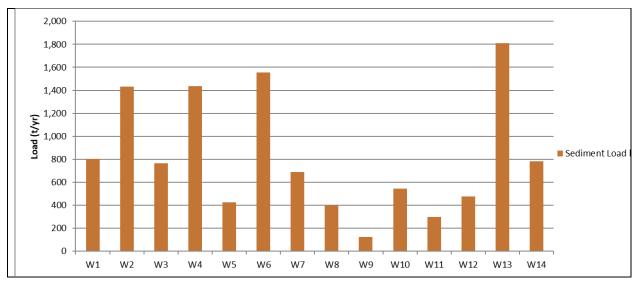
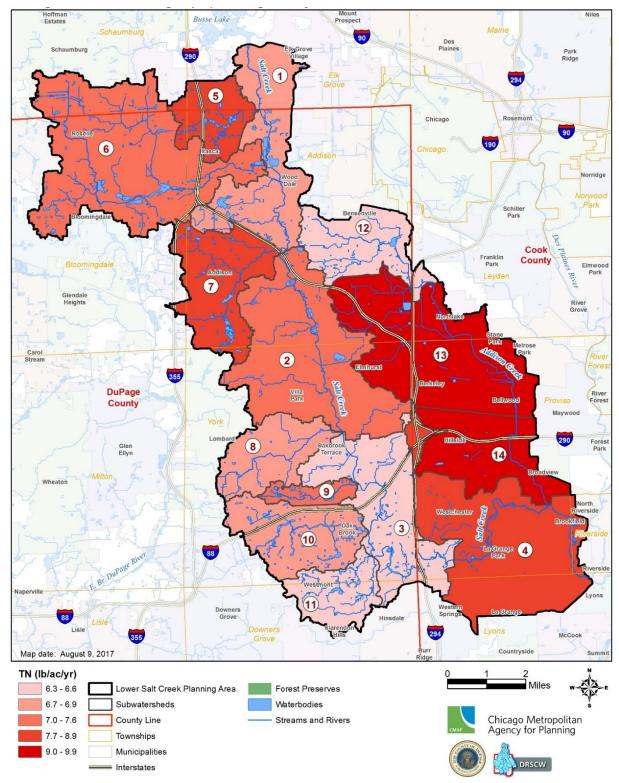
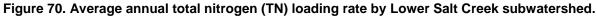


Figure 69. Average annual sediment load (tons/year) by subwatershed.









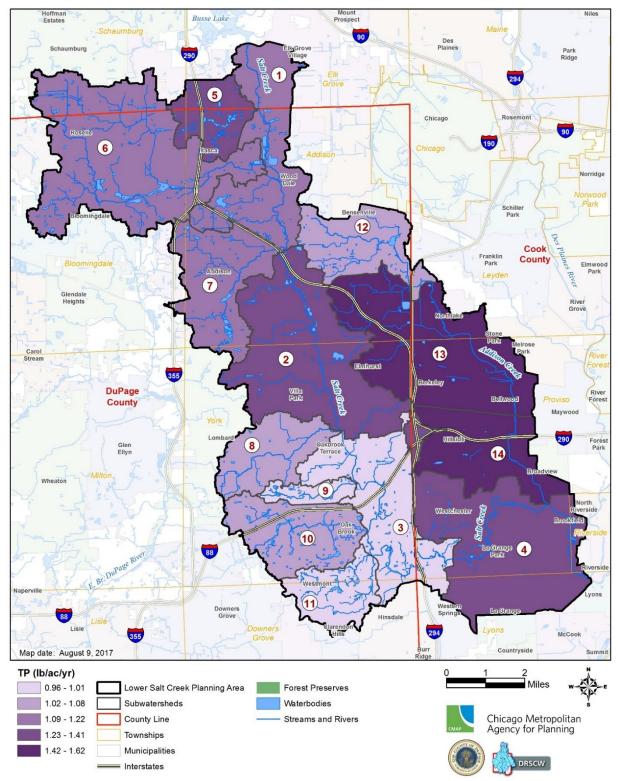


Figure 71. Average annual total phosphorus (TP) loading rate by Lower Salt Creek subwatershed.



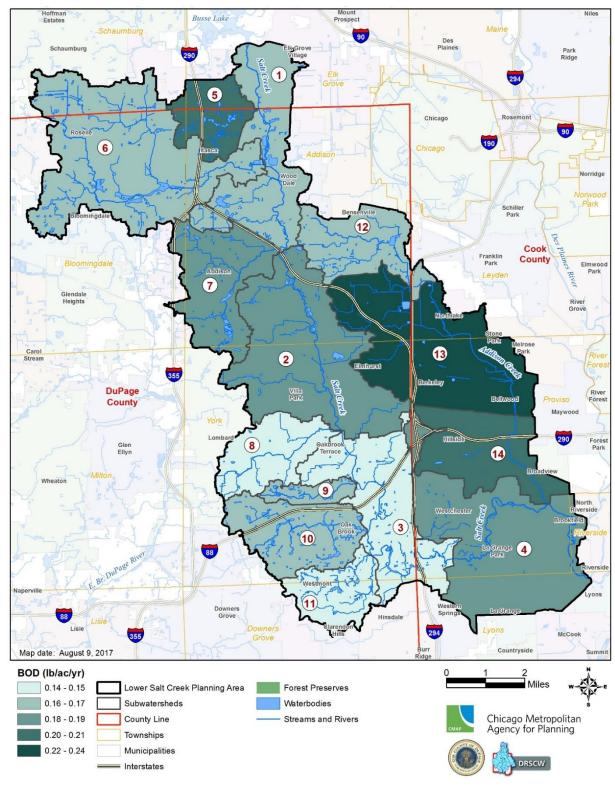


Figure 72. Average annual biological oxygen demand (BOD) loading rate by Lower Salt Creek subwatershed.



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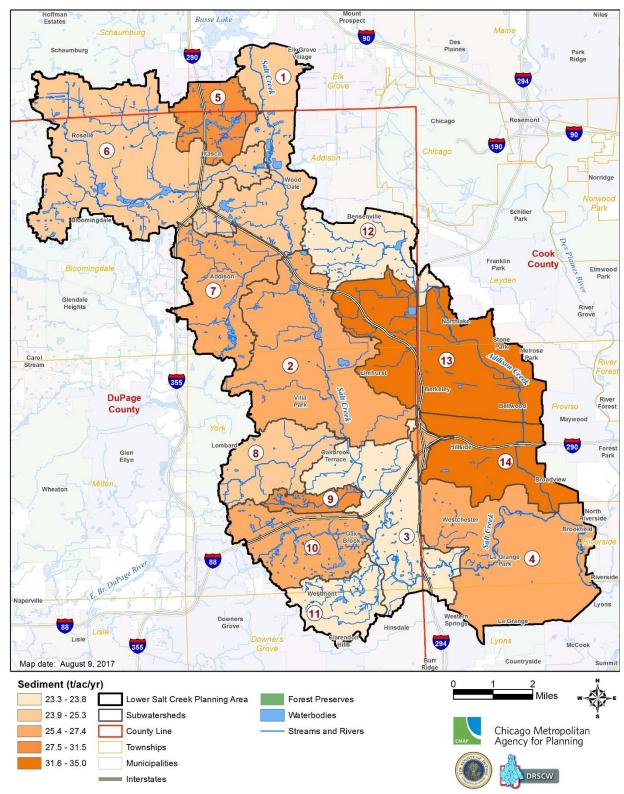


Figure 73. Average annual sediment loading rate by Lower Salt Creek subwatershed.



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S	Subwater- shed	Commercial	Industrial	Institutional	Transpor- tation	Multi- Family	Single- Family	Agriculture	Vacant	Open Space	Totals
1	Salt Crk North	1260	2617	1250	7476	550	10867	38	1293	8430	33,780
2	Salt Crk Central	3073	3650	1674	15759	1420	28318	0	823	5413	60,129
3	Salt Crk South	4104	205	2016	6398	408	10108	0	745	9142	33,127
4	Salt Crk Southeast	2424	871	3860	14553	1497	22643	0	648	14492	60,988
5	Devon Ave. Trib.	2272	1496	608	5831	544	5601	0	998	589	17,938
6	Spring Brook Crk	2773	6259	2316	13998	1120	24028	0	1454	13522	65,470
7	Westwood Crk	1697	6050	1490	6174	822	8226	172	1043	3287	28,960
8	Sugar Crk	1421	171	1857	3138	254	8776	0	372	1358	17,347
9	Oak Brook Trib.	2156	113	178	725	156	856	0	0	1457	5,641
10	Ginger Crk	4046	770	718	306	3193	4567	0	0	10138	23,738
11	Bronswood Trib.	1700	361	626	2002	123	5293	0	514	2488	13,108
12	Addison Crk North	443	1709	985	4093	582	6539	9	392	5381	20,132
13	Addison Crk Cntral	4478	11888	5331	26403	1720	22548	0	539	2947	75,854
14	Addison Crk South	2189	4610	6685	9137	751	9518	0	175	638	33,703
	Totals	34,037	40,769	29,594	115,992	13,140	167,888	219	8,996	79,281	489,915

Table 57. Land use-based NPS TN load estimates (pounds/year) by subwatershed land use.



5	Subwater- shed	Commercial	Industrial	Institutional	Transpor- tation	Multi- Family	Single- Family	Agriculture	Vacant	Open Space	Totals
1	Salt Crk North	200	415	198	1187	87	1725	6	205	1338	5,362
2	Salt Crk Central	505	600	275	2590	233	4654	0	135	890	9,882
3	Salt Crk South	624	31	306	972	62	1536	0	113	1389	5,034
4	Salt Crk Southeast	390	140	621	2340	241	3641	0	104	2331	9,808
5	Devon Ave. Trib.	361	238	97	926	86	890	0	158	94	2,849
6	Spring Brook Crk	445	1004	371	2245	180	3854	0	233	2169	10,501
7	Westwood Crk	272	968	238	988	132	1316	27	167	526	4,634
8	Sugar Crk	230	28	301	509	41	1423	0	60	220	2,813
9	Oak Brook Trib.	295	15	24	99	21	117	0	0	199	772
10	Ginger Crk	625	119	111	47	493	705	0	0	1565	3,664
11	Bronswood Trib.	260	55	96	306	19	810	0	79	381	2,006
12	Addison Crk North	71	274	158	656	93	1047	1	63	862	3,225
13	Addison Crk Cntral	734	1949	874	4328	282	3696	0	88	483	12,434
14	Addison Crk South	359	755	1096	1497	123	1560	0	29	105	5,523
	Totals	5,370	6,591	4,766	18,691	2,093	26,975	35	1,435	12,551	78,507

Table 58. Land use-based NPS TP load estimates (pounds/year) by subwatershed land use.



S	Subwater- shed	Commercial	Industrial	Institutional	Transpor- tation	Multi- Family	Single- Family	Agriculture	Vacant	Open Space	Totals
1	Salt Crk North	4392	9124	4358	26067	1917	37892	134	4508	29393	117,784
2	Salt Crk Central	11080	13159	6037	56819	5122	102103	0	2966	19517	216,803
3	Salt Crk South	14885	744	7311	23203	1479	36660	0	2703	33157	120,141
4	Salt Crk Southeast	8702	3129	13860	52247	5376	81293	0	2325	52030	218,961
5	Devon Ave. Trib.	8068	5313	2158	20711	1933	19892	0	3544	2092	63,710
6	Spring Brook Crk	9850	22228	8224	49716	3977	85337	0	5165	48025	232,521
7	Westwood Crk	6054	21576	5315	22019	2932	29338	612	3719	11722	103,285
8	Sugar Crk	5406	652	7062	11934	968	33377	0	1414	5166	65,977
9	Oak Brook Trib.	8495	444	701	2856	615	3374	0	0	5740	22,225
10	Ginger Crk	15371	2925	2726	1164	12129	17349	0	0	38510	90,174
11	Bronswoo d Trib.	6386	1357	2351	7520	463	19881	0	1931	9344	49,234
12	Addison Crk North	1556	6005	3461	14379	2043	22973	32	1378	18905	70,731
13	Addison Crk Cntral	15877	42150	18903	93613	6097	79946	0	1911	10449	268,947
14	Addison Crk South	8057	16969	24608	33633	2763	35035	0	645	2347	124,058
	Totals	124,178	145,772	107,075	415,880	47,813	604,450	778	32,210	286,397	1,764,551

Table 59. Land use-based NPS BOD load estimates (pounds/year) by subwatershed land use.



	Subwater- shed	Commercial	Industrial	Institutional	Transpor- tation	Multi- Family	Single- Family	Agriculture	Vacant	Open Space	Totals
1	Salt Crk North	30	62	30	178	13	259	1	31	201	805
2	Salt Crk Central	73	87	40	375	34	674	0	20	129	1,432
3	Salt Crk South	95	5	47	148	9	233	0	17	211	765
4	Salt Crk Southeast	57	21	91	343	35	534	0	15	342	1,438
5	Devon Ave. Trib.	54	35	14	138	13	133	0	24	14	425
6	Spring Brook Crk	66	149	55	332	27	571	0	35	321	1,555
7	Westwood Crk	40	144	35	146	19	195	4	25	78	687
8	Sugar Crk	33	4	43	72	6	202	0	9	31	399
9	Oak Brook Trib.	47	2	4	16	3	19	0	0	32	123
10	Ginger Crk	93	18	16	7	73	105	0	0	232	544
11	Bronswood Trib.	39	8	14	46	3	121	0	12	57	300
12	Addison Crk North	11	41	23	97	14	156	0	9	128	479
13	Addison Crk Cntral	107	283	127	629	41	537	0	13	70	1,808
14	Addison Crk South	51	107	155	212	17	221	0	4	15	782
	Totals	794	965	695	2,741	308	3,959	5	212	1,861	11,542

Table 60. Land use-based NPS sediment load estimates (tons/year) by subwatershed land use.



3.7.1.2 Streambank Erosion Pollutant Load Estimates

Pollutant loads from eroding streambank locations identified as "heavy" or "bank failure (severe)" in Figure 29 were estimated using U.S. EPA's Spreadsheet Tool to Estimate Pollutant Loads (STEPL). Results of the spreadsheet tool analyses are provided in Table 61.

Subwatershed		Severely Eroding	Severely Eroding Bank	Nitrogen	Phosphorus	BOD	Sediment
#	Name	Bank Length (ft)	Height Range (ft)	Load (lb/yr)	Load (lb/yr)	Load (lb/yr)	Load (T/yr)
1	Salt Crk North	9,750	2-4	847	326	1,695	530
2	Salt Crk Central	23,800	3-4.5	2129	820	4,259	1,331
3	Salt Crk South						
4	Salt Crk Southeast	13,183	3-12	1,150	443	2,300	725
5	Devon Ave. Trib.						
6	Spring Brook Crk	3,400	2-2.5	188	73	377	139
7	Westwood Crk	1,240	2.5	79	31	159	50
8	Sugar Crk						
9	Oak Brook Trib.						
10	Ginger Crk						
11	Bronswood Trib.						
12	Addison Crk North	2,910	4-8+	627	111	2,061	48
13	Addison Crk Cntral	7,680	4-12	3,377	782	10,375	720
14	Addison Crk South	29	3	2	1	4	1
	Totals	61,992	2-12	8,399	2,587	21,230	3,544

Table 61. Pollutant load estimates for streambank areas identified as exhibiting "heavy" or "severe" erosion in the Lower Salt Creek planning area.



3.7.2 Point Sources

3.7.2.1 National Pollutant Discharge Elimination System (NPDES) Permittees

Authorized under amendments made to the Clean Water Act in 1987, the U.S. Environmental Protection Agency (U.S. EPA) uses permits issued through the National Pollutant Discharge Elimination System (NPDES) to manage pollution to waterbodies from a variety of point sources. Illinois EPA issues the permits through delegation of authority by U.S. EPA. Point sources regulated through NPDES include wastewater treatment plants, industrial dischargers, concentrated animal feeding operations (CAFOs), combined sewer overflows (CSOs), sanitary sewer overflows (SSOs), and urban stormwater runoff discharged via a pipe.¹⁴⁰ The NPDES program plays a key role in protecting and restoring water quality. Issued permits set discharge limits specific to the waterbody (within in which the pollution is being discharged), require monitoring and reporting of pollutants and water quality indicators such as dissolved oxygen (DO) and biological oxygen demand (BOD), and limit the discharge of specific pollutants including total suspended solids, ammonia nitrogen, fecal coliform, and phosphorus.

NPDES Wastewater Discharge Permittees and Facility Planning Areas

There are 28 permitted dischargers of wastewater in the planning area (Figure 74). Of these, 16 are municipal permit holders and 12 are private facility permittees. Collectively, they hold 145 discharge permits within the Lower Salt Creek planning area.

Facility planning areas are also shown in Figure 74. A facility planning area (FPA) is the geography served by a wastewater treatment plant based on plant capacity, development plans, and other nearby FPAs. The FPA includes both the current sewer-service area as well as unsewered areas that are expected to be developed and served in the future. The DuPage County portion of the planning area is served by 11 FPAs, while the Cook County portion is entirely served by the Metropolitan Water Reclamation District of Greater Chicago (MWRD).

¹⁴⁰ "NPDES Permit Program Basics," U.S. EPA, last modified January 4, 2011, accessed October 12, 2011, <u>http://cfpub.epa.gov/npdes/home.cfm? program_id=45</u>.



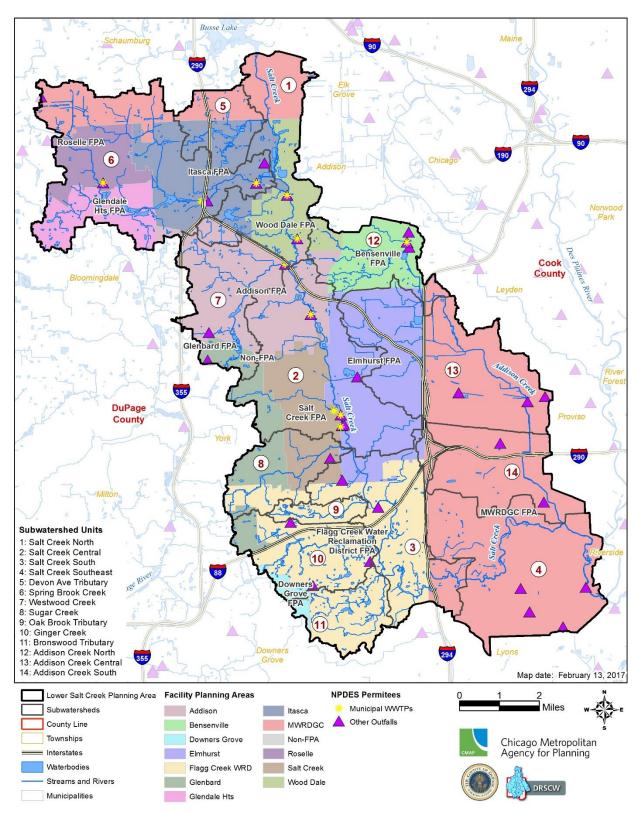


Figure 74. NPDES permittees and Facility Planning Areas in the Lower Salt Creek planning area.

NPDES Stormwater Program



Chicago Metropolitan Agency for Planning

Lower Salt Creek Watershed-Based Plan The stormwater component of the NPDES Program was implemented in two phases. Phase I of this program was implemented in 1990 and applies to medium and large municipal separate storm sewer systems (MS4s) as well as certain counties with populations of 100,000 or more. Phase I MS4 permittees are regulated under individual permits and are informed by the regulations at 40 C.F.R. 122.26(d).¹⁴¹ Phase II was implemented in 2003 and expanded the scope of storm sewer systems which are subject to NPDES.¹⁴² Phase II applies to small MS4s¹⁴³ including smaller construction or industrial sites that are owned and operated in urbanized areas.¹⁴⁴ Industrial sites or construction activities that disturb one or more acres of land must obtain an NPDES permit before construction activities begin.¹⁴⁵ Most Phase II MS4 permittees are regulated under a general permit.

Under the terms of Phase II permits, industrial, construction, and MS4 Phase II permittees are required to implement certain practices that control pollution in stormwater runoff. To prevent the contamination of stormwater runoff, industrial and construction permittees must develop a stormwater pollution prevention plan, while MS4 permittees must develop a similar stormwater management program. Stormwater runoff carrying pollutants from impervious surfaces can degrade water quality when discharged untreated into local rivers and streams, as is often the case. Programs like Phase II that encourage planning and implementation on a watershed basis are therefore vital for protecting water quality from stormwater runoff from both large and small separate stormwater sewer systems as well as industrial and construction sites.

In Illinois, discharges from small MS4s are regulated under Illinois EPA's General NPDES Permit No. ILR40. The central feature of this permit is a requirement that MS4 operators develop, implement, and enforce a stormwater management program to reduce the discharge of pollutants. A Phase II permittee's stormwater management program must include six minimum control measures as outlined in 40 C.F.R. 122.34(b)¹⁴⁶:

- 1. Public education and outreach on storm water impacts
- 2. Public involvement and participation



¹⁴¹ U.S. EPA. *MS4 Permit Improvement Guide*. EPA 833-R-10-001. Washington, DC: U.S. EPA, 2010. <u>https://www3.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf</u> (accessed February 14, 2017).

¹⁴² "NPDES Stormwater Program," U.S. EPA, last modified January 4, 2011, accessed October 13, 2011, <u>http://cfpub.epa.gov/npdes/home.cfm? program_id=6</u>.

¹⁴³ Illinois EPA, Bureau of Water, MS4s Permittees, <u>http://www.epa.state.il.us/water/permits/storm-water/ms4-status-report.pdf</u> (accessed November 13, 2014)

¹⁴⁴ "NPDES Stormwater Program," U.S. EPA, last modified January 4, 2011, accessed October 13, 2011, <u>http://cfpub.epa.gov/npdes/home.cfm? program_id=6</u>.

¹⁴⁵ U.S. EPA. "Stormwater Phase II Final Rule: An Overview." EPA Report No. 833-F-00-001. Washington, D.C.: U.S. EPA, 2005. <u>http://www.epa.gov/npdes/ pubs/fact2-0.pdf (accessed October 12, 2011)</u>.

¹⁴⁶ U.S. EPA. *MS4 Permit Improvement Guide*. EPA 833-R-10-001. Washington, DC: U.S. EPA, 2010. <u>https://www3.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf</u> (accessed February 14, 2017).

- 3. Illicit discharge detection and elimination
- 4. Construction site storm water runoff control
- 5. Post construction storm water management in new development and redevelopment
- 6. Pollution prevention / good housekeeping for municipal operations

To define its storm water management program, a permittee must define best management practices (BMPs) and measureable goals for each of the six minimum control measures.

In order to obtain coverage under the permit, permittees must submit to Illinois EPA a completed Notice of Intent (NOI)¹⁴⁷ describing its BMPs and measurable goals, providing other program specifics, and identifying any arrangements made with others to share program responsibilities. Once coverage has been granted, a permittee must submit an annual report to Illinois EPA by June 1 which must include the following:

- 1. The status of compliance with the permit conditions, including an assessment of the BMPs and progress toward the measurable goals;
- 2. Results of any information collected and analyzed, including monitoring data;
- 3. A summary of the stormwater activities planned for the next reporting cycle;
- 4. A change in any identified best management practices or measurable goals; and
- 5. If applicable, notice of relying on another governmental entity to satisfy some of the permit obligations.¹⁴⁸

Stormwater Management Ordinances

In addition to the MS4 program, both DuPage and Cook Counties have a county-wide ordinance to manage the impacts of urbanization on stormwater drainage, safeguard public health and safety, protect the environment, and support response land use decisions.^{149, 150} Each



¹⁴⁷Illinois EPA, Bureau of Water. Notice of Intent for New or Renewal of General Permit for Discharges from Small Municipal Separate Storm Sewer Systems – MS4's. <u>http://www.epa.state.il.us/water/permits/storm-water/forms/notice-intent-ms4.pdf</u>

¹⁴⁸ M. Novotney. Lake Co. Stormwater Management Commission. 2013. *Personal communication*. There are several other noteworthy requirements of the program, including: (1) annual program review as part of annual report preparation; and, (2) at least annual monitoring of receiving waters, use of indicators to gauge the effects of stormwater discharges on the physical/habitat-related aspects of receiving waters, and/or monitoring BMP effectiveness.

¹⁴⁹ Metropolitan Water Reclamation District of Great Chicago, Watershed Management Ordinance, Illinois: MWRD, amended July 2014,

https://www.mwrd.org/pv_obj_cache/pv_obj_id_B8C7A4FC0080A6A35076861145E0C0A534186200/filename/WMO.p_df (accessed February 17, 2017).

¹⁵⁰ DuPage County, DuPage County Stormwater Management Planning Committee, Stormwater Management, *Countywide Stormwater and Floodplain Ordinance*, doc40943, Illinois: DuPage County, April 2013, https://www.dupageco.org/EDP/Stormwater Management/Docs/40943/ (accessed February 17, 2017).

ordinance articulates a set of regulations, procedures, and/or programmatic structures to promote and help implement these objectives.

DuPage County has the DuPage Countywide Stormwater and Flood Plain Ordinance (DCSFPO).¹⁵¹ The ordinance is enforced by DuPage County Stormwater Management; however, municipalities are given the opportunity to receive authorization to review and process stormwater permits within their jurisdiction.¹⁵² Municipalities that choose to perform these duties are called complete waiver communities; municipalities that chose to review all aspects of the permits except for development in Special Management Areas are called non-waiver and partial waiver communities (Table 62).^{153,154} The DCSFPO was last revised in April 2013, and applies to all development within DuPage County that existed after February 15, 1992.¹⁵⁵

Cook County has the Watershed Management Ordinance (WMO), which is administered and enforced by the Metropolitan Reclamation District of Great Chicago (MWRD). The WMO applies to all development within the boundaries of Cook County, except for the City of Chicago. Similar to DuPage County, some municipalities within Cook County have been given authorization to administer and enforce certain aspects of the WMO. If the boundaries of a municipality fall within Cook County as well as an adjacent county, it is has the option to adopt and enforce the WMO or the ordinance of the adjacent county. The Village of Hinsdale and Village of Roselle – two municipalities whose boundaries intersect the Lower Salt Creek planning area – have chosen to adopt and enforce the WMO rather than the DCCSFPO (Table 62).

The provisions set forth in these ordinances are complementary to the principles of watershed planning. Although the word "watershed" is not in the title of DuPage's ordinance, the DCSFPO specifically calls out the need for assessing stormwater management and flood control at the watershed scale, and thereby, requires watershed plans to be prepared for the county's six major watersheds. Furthermore, each ordinance outlines a set of regulations that work to protect riparian and wetland, manage floodplains, reduce erosion, control sediment, and manage stormwater through runoff, volume control, and/or detention requirements which are often based on the type of development and impervious cover. The WMO is unique in that is provides design specs for

¹⁵⁵ Ibid.



¹⁵¹ Ibid.

¹⁵² Authorization excludes the review and processing of permits that involve a floodway.

¹⁵³ "Stormwater Regulatory Services," *The County of DuPage, DuPage County Stormwater Management*, last accessed February 17, 2017, <u>http://www.dupageco.org/EDP/Stormwater_Management/1165/</u>

¹⁵⁴ DuPage County, DuPage County Stormwater Management Planning Committee, Stormwater Management, Countywide Stormwater and Floodplain Ordinance, doc40943, Illinois: DuPage County, April 2013, <u>https://www.dupageco.org/EDP/Stormwater_Management/Docs/40943/</u> (accessed February 17, 2017).

stormwater BMPs including detention basins. In some jurisdictions, HOAs may take on this upkeep, and thereby they have a key role in the scheme of local stormwater management.

Jurisdiction	Full	Partial	No
	Authorization	Authorization ¹⁵⁶	Authorization
Addison	Yes		<u>.</u>
Bellwood			Yes
Bensenville		Yes	
Berkeley			Yes
Bloomingdale*	Yes	Yes	
Broadview			Yes
Brookfield			Yes
Clarendon Hills		Yes	
Downers Grove	Yes		
DuPage County, Unincorporated*		Yes	
Elk Grove Village*		Yes	
Elmhurst		Yes	
Franklin Park			Yes
Hillside			Yes
Hinsdale***		Yes	
Itsaca		Yes	
La Grange			Yes
La Grange Park			Yes
Lombard		Yes	
Lyons			Yes
Maywood			Yes
Melrose Park			Yes
North Riverside			Yes
Oak Brook	Yes		
Oak Brook Terrace		Yes	
Roselle***		Yes	
Schaumburg*		Yes	
Stone Park			Yes
Villa Park*		Yes	
Westchester**	Yes		
Western Springs**	Yes		
Wood Dale	Yes		

Table 62. MS4 Communities within the Lower Salt Creek planning area by level of authority to administer and enforce county stormwater or watershed management ordinances.

¹⁵⁶ Partial authorization includes both partial waiver and non-waiver communities.



* Non-waiver communities within DuPage County (see footnote 69).

** Municipalities that have entered into an intergovernmental agreement with MWRD that grants authorization to administer aspects of the WMO, including the issuance of watershed management permits.

*** Municipalities that have chosen to adopt and enforce the Cook County WMO rather than the DuPage Countywide Stormwater and Flood Plain Ordinance.

3.7.2.2 Leaking Underground Storage Tanks

Leaking underground storage tanks (UST) are a source of environmental contamination and threaten the quality and safety of groundwater as a source of drinking water. The Office of the State Fire Marshall regulates the daily operation and maintenance of underground storage tank systems, and the Illinois EPA becomes involved once a release (i.e., leak) has been reported to the Illinois Emergency Management Agency (IEMA). Following a tank release report to IEMA, Illinois EPA's Leaking UST section begins oversight of remedial operations.¹⁵⁷

While leaking UST sites are a concern wherever they exist, they are particularly relevant in an area of groundwater-dependent communities and private-well owners. The Lower Salt Creek planning area includes 1,140 leaking UST sites (Table 63, Figure 75). A large number of sites reside in Addison, Elmhurst, and Villa Park. Based on the planning area's subwatershed units, Salt Creek Central and Addison Creek Central have the most leaking USTs.

Knowledge of leaking UST sites and their clean-up status can work in favor of developing wellhead protection plans for existing community water supply wells. These plans can also reduce the vulnerability of wells to other potential sources of contamination. For more information regarding the status of leaking UST sites, readers are referred to the Leaking UST Incident Tracking database.¹⁵⁸

An Underground Storage Tank Fund was established in 1989 to help owners and operators pay for cleaning up leaks from petroleum USTs. Illinois generates money for the leaking UST Fund through a \$0.003 per gallon motor fuel tax and a \$0.008 per gallon environmental impact fee, both of which are set to expire January 1, 2025.

Sul	bwatershed	# Leaking
#	Name	USTs
1	Salt Creek North	33
2	Salt Creek Central	212

Table 63. Number of leaking underground storage tank sites by Lower Salt Creek subwatershed.

¹⁵⁸ "Leaking UST Database," Illinois Environmental Protection Agency, last accessed October 17, 2017, <u>http://epadata.epa.state.il.us/land/ust/</u>



¹⁵⁷ "An Introduction to Leaking Underground Storage Tanks," Illinois Environmental Protection Agency, last accessed October 17, 2017, <u>http://www.epa.state.il.us/land/lust/introduction.html</u>

	Total	1,140
14	Addison Creek South	112
13	Addison Creek Central	260
12	Addison Creek North	41
11	Bronswood Tributary	13
10	Ginger Creek	21
9	Oak Brook Tributary	6
8	Sugar Creek	32
7	Westwood Creek	90
6	Spring Brook Creek	100
5	Devon Avenue Tributary	18
4	Salt Creek Southeast	153
3	Salt Creek South	49



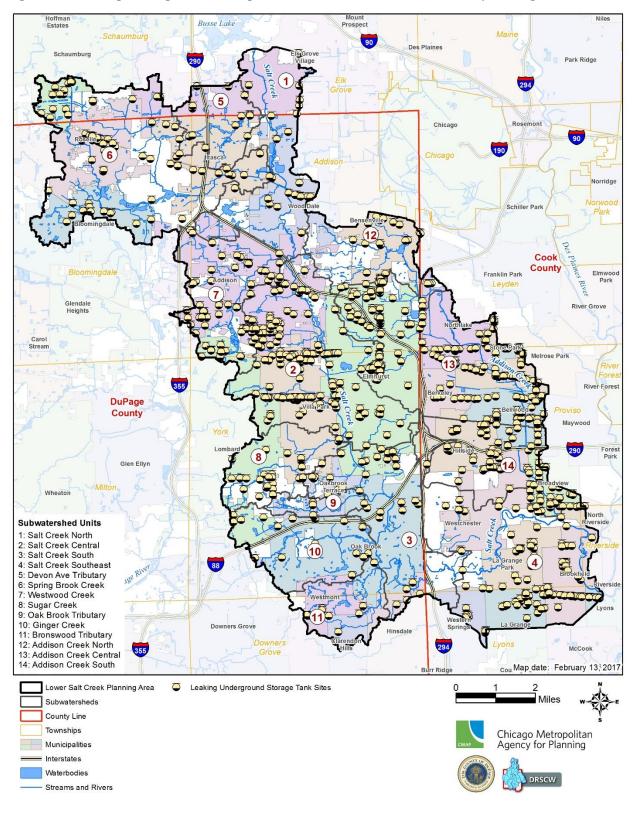


Figure 75. Leaking underground storage tank sites in the Lower Salt Creek planning area.



3.7.3 Significant Sources of Chloride¹³⁹

In October 2004, the United States Environmental Protection Agency (USEPA) approved chloride TMDLs for Salt Creek (IEPA, 2004). The TMDLs call for reductions in chloride loading, specifically from winter road salt application in the watersheds.

The TMDLs for these watersheds were specifically derived to achieve compliance with the State water quality standard for chloride of 500 mg/L. This general use chloride water quality standard (WQS) was adopted in 1972 by the Illinois Pollution Control Board (IPCB). It lies between the acute and chronic chloride limits established by USEPA. Salt Creek is designated for general use; therefore, the 500 mg/L standard applies to the Lower Salt Creek planning area.

The Salt Creek TMDL divided the allocations into two subwatersheds, Addison Creek and Salt Creek, which were targeted for 41% and 8% reductions, respectively (IEPA, 2004, Salt Creek TMDL). The DRSCW's review of winter deicing operations and resulting loadings referenced below, groups Addison Creek into the Salt Creek watershed.

Data used by the TMDL was obtained from grab samples taken between from 1995 to 1999. During this time, there were five observed exceedances of the chloride WQS in Salt Creek, all of which were collected during the winter months. Post TMDL monitoring carried out by the DRSCW shows that winter violations of the state chloride water quality standard are frequent during winter months.

Potential sources of chloride are groundwater and discharges from publicly owned treatment works (POTWs) and MS4 communities. The average groundwater chloride concentration reported in the 2004 TMDL was 51 mg/L. It is not covered further in either the TMDL or this plan. For reference, the chloride TMDL allocations are summarized in Table 64.

	Salt Creek (including Addison Creek)
Point sources, tons of Cl ⁻ /yr	28,700
Nonpoint sources,	13,300
tons of Cl ⁻ /yr	10,000

Table 64. TMDL chloride allocations for po	bint and nonpoint sources.
--	----------------------------

The principle categories of dischargers identified in the planning area are 1) Publicly Owned Treatment Works, and 2) Communities with MS4 permits. Within the Lower Salt Creek planning area, chloride concentration samples were collected at Publicly Owned Treatment Works (POTWs) in the late fall of 2013, with the exceptions of Roselle Devlin WWTP and MWRDGC Egan WRP, which were sampled in late December 2015 and early January 2016

¹⁵⁹ This section was written by Stephen McCracken, DRSCW, and provided to CMAP via email Nov. 3, 2017.



respectively. No violations of the State water quality standard (500 mg/l) were found at any plant, but two samples from the MWRDGC Egan WRF did exceed the federal chronic standard (230 mg/l). Samples at this facility were collected during the winter months and the higher than average concentrations are likely the product of stormwater infiltration into the wastewater system. A summary of the data can be found in Table 65.

NPDES Permit Number	Facility Name	Longitude	Latitude	DAF (MGD)	DMF (MGD)	Receiving Stream	Mean Chloride (mg/L) (effluent)
IL0036340	MWRDGC EGAN WRP	-88.00083	42.01528	30	50	Salt Creek	195*
IL0026280	Itasca STP	-87.9919	41.9714	3.2	8.2	Salt Creek	124
IL0030813	Roselle - J.L. Devlin WWTP	-88.0767	41.9692	2	4	Spring Brook Creek	154*
IL0020061	Wood Dale North STP	-87.985	41.965	1.97	3.93	Salt Creek	118
IL0034274	Wood Dale South STP	-87.98306	41.94917	1.13	2.33	Salt Creek	90
IL0021849	Bensenville South STP	-87.92583	41.94778	4.7	12	Addison Creek	NC#
IL0033812	Addison North STP	-87.98528	41.93917	5.3	7.6	Salt Creek	156
IL0027367	Addison South - A.J. Larocca STP	-87.97389	41.92194	3.2	8	Salt Creek	181
IL0030953	Salt Creek Sanitary District	-87.9597	41.8853	3.3	8	Salt Creek	96
IL0028746	Elmhurst WWTP	-87.9589	41.8819	8	20	Salt Creek	124

Table 65. Publicly owned treatment works in the Lower Salt Creek planning area.

For communities with MS4 permits, the TMDL loading from road salting was calculated based on 14 snowfall events, the length of road surface in the watershed, and an assumed standard salt application rate of 800 pounds per lane-mile, per storm – a value based on literature from other major cities.

The conclusion of the TMDL reports was that "[the] primary contributor to the [chloride WQS] exceedances is application of road salt for snow and ice control purposes. However, due to the sporadic nature of deicing activities, on a yearly basis, the chloride mass contributed to Salt Creek watershed is larger from point sources than nonpoint sources" (IEPA, 2004, Salt Creek TMDL).



Road salt is almost entirely sodium chloride, which is composed of 39.3% sodium and 60.7% chloride, by mass. Data collected between 2006 and 2017 on winter salt concentrations confirms that winter snow and ice control is the source of water quality violations in Salt Creek (Figure 76).

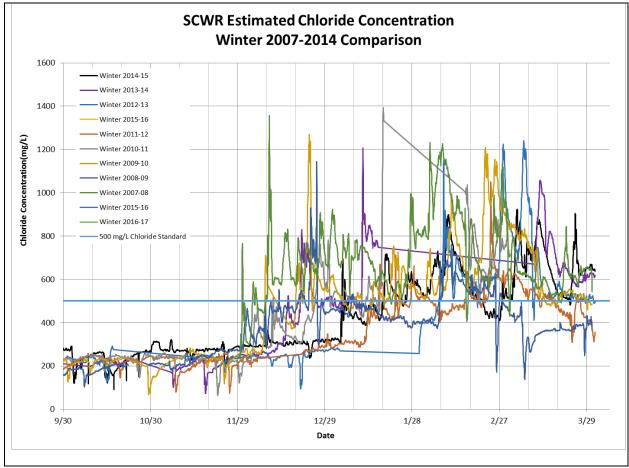


Figure 76. Chloride concentrations in Salt Creek at Wolf Road, 2007-2017.

Data is derived from conductivity data gathered at the site by MWRDGC and converted to chloride concentrations by DRSCW.

In 2007, the DRSCW sent a questionnaire to over 80 deicing agencies in the Upper DuPage River and Salt Creek basins and received responses from 39 agencies (including more than 20 in the Lower Salt Creek planning area). Approximately 130 private snow removal companies in the watershed area were also sent the questionnaire.

The total amount of chloride applied in the form of road salt throughout watershed annually was estimated from the questionnaire responses. The estimated load includes salt from municipalities, townships, the Illinois State Toll Highway Authority, and county transportation departments; private snow removal companies and the Illinois Department of Transportation were not accounted for. The TMDL baseline chloride loadings (TMDL Baseline) and road salt allocations are shown for reference in Table 66.



	Salt Creek
DRSCW Baseline,	22 600
tons of Cl ⁻ /yr	32,600
TMDL Baseline,	15 500
Tons of Cl ⁻ /yr	15,500
TMDL Target,	12 200
tons of Cl-/yr	13,300

Table 66. Estimated current chloride loading from road salt in the study area, compared with TMDL road salt chloride allocations.

As Table 66 shows, the DRSCW questionnaire findings suggest that the TMDL under estimated application rates. Based on the DRSCW loading figure, a 59% reduction (19,300 tons/year) in winter de-icing materials would be necessary to meet the TMDL baseline.

3.7.4 Polycyclic Aromatic Hydrocarbons¹⁶⁰

Polycyclic aromatic hydrocarbons (PAHs) are a large group of organic compounds found naturally in coal and petroleum products. PAHs are formed by the incomplete combustion of organic matter from fossil fuels, wood, and cigarettes. As there are many sources of PAHs in the environment such as motor oil, automobile exhaust, and asphalt, it is not uncommon to find these chemical in our stream sediments. However, analysis of twenty-seven (27) sediments samples collected by the DRSCW from the Salt Creek watershed indicated high levels of PAHs. Sixteen (16) of the sites had one (1) or more PAHs above the "Probable Effects Concentration". The probable effect concentration (PEC) is the level which adverse effects to aquatic life are expected to frequently occur. All sites had one or more PAHs above the above the "Threshold Effect Concentration" (TEC). The TEC is the level which adverse effects to aquatic life are likely to occur. PECs and TECs are determine from a review of dozens of individual studies that then utilized a consensus-based approach to set the limits.

PAHs have documented effects on aquatic life. Fish exposed to high levels of PAHs exhibit chronic effects including fin erosion, liver abnormalities, tumors and immune system impairments. Benthic macroinvertbrates (or the insects found in streams that serve as the base of the aquatic food chain) that are exposed to PAHs exhibit reproduction impairments and mortality. Amphibians such as frogs and salamanders have also exhibited negative effects including stunted growth and delayed development. PAHs in sediments are one of the primary stressors on aquatic organisms in the Salt Creek watershed.

Given the high levels of PAHs observed in Salt Creek's sediments and the known impacts on aquatic life, the DRSCW investigated potential sources for elevated PAHs in urban stream sediments. A literature review found research the United States Geological Survey (USGS) conducted in 40 US lakes. This study linked coal tar sealants to elevated PAH levels in stream

¹⁶⁰ This section written by Deanna Doohaluk, DRSCW, and provided to CMAP via email Dec. 20, 2017.



sediment in urban areas. Since that the publication of that study in 2010, numerous other studies from Illinois, Michigan, Minnesota, New Hampshire, Texas, Washington, Washington DC, Wisconsin, and Utah have confirmed the link between coal tar sealants and elevated PAH levels in the sediment of urban areas. A recent study found that 77% of PAH pollution in Milwaukee streambeds came from coal tar-based sealants.

The high costs associated with the removal of high PAH sediments from the environment has also been documented. Due to high PAH levels, soils dredged from storm water management facilities such as detention basins and roadside swales need to be disposed as hazardous and/or special waste to comply with State of Illinois regulations. The disposal cost for hazardous and special wastes is orders of magnitude higher than the disposal cost of uncontaminated sediments. For example, a study in Minnesota estimates that the costs will exceed over 1 billion dollars to remove high PAH sediments from just 10% of the estimated 20,000 municipal storm water ponds in the Minneapolis-St Paul metropolitan area where cleanup in needed.

Coal tar sealants are the black, viscous liquid sprayed or painted on many asphalt parking lots, driveways, and playgrounds to protect and enhance the appearance of the underlying asphalt. It is estimated that 85 million gallons of coal tar sealants are applied each year in the U.S. As these sealants erode from their applied surfaces, they are transported via stormwater runoff into our rivers and streams and into the air via wind, vehicle tires, and on the soles of shoes. In addition to the water and sediment quality impacts of coal-tar based sealants, numerous human health impacts have also been documents. Coal tar and coal-tar pitch are group 1 carcinogens and have been linked to birth defects.

Given the documented impacts of PAHs, several jurisdictions including the States of Washington and Minnesota as well as Washington DC, and more than 20 municipalities and counties including South Barrington, North Barrington, Highland Park, Wilmette, and Winnetka in Illinois, and Milwaukee and Dane County in Wisconsin, have banned the use of coal tar sealants. Additionally, the DRSCW has worked with its member agencies and more than 14 have signed a Memorandum of Understanding (MOU) that bans the use of coal-tar sealants in their operations and by their contractors. Member agencies in the Lower Salt Creek watershed that have signed this MOU include Addison, Bloomingdale, Downers Grove, DuPage County, Elmhurst, Forest Preserve District of DuPage County, and Lombard.



4. Watershed Protection Measures

4.1 Planning, Policy, and Programming

4.1.1 General Planning and Ordinance Recommendations

Comprehensive planning is one of the foundations of community-based watershed protection. By setting the community's vision for its long-term future, a comprehensive plan represents the opportunity to codify the importance that clean, protected surface and ground water holds for a city or village. A comprehensive plan addresses the location, type, and framework for future development in a community, and informs the development controls of zoning, subdivision, stormwater, and related ordinances. It also informs supporting plans, such as open space, green infrastructure, and bicycle plans, that provide specialized goals for implementing those aspects of the comprehensive plan's vision.

All but five of the 33 municipalities with greater than one acre within the Lower Salt Creek planning area (thus excluding Chicago) have a comprehensive land use plan, as do DuPage and Cook Counties (see Section 3.6.1). As a general practice, comprehensive plans should be updated every 10-12 years.

The following describes some recommendations for communities to consider when they develop or update local plans that will also help to advance the goals of this watershed-based protection plan. Appendix D provides a list of elements recommended for inclusion in comprehensive plans that potentially impact water quality and watershed health.

- DuPage County and several municipalities have comprehensive plans greater than ten years old and should consider updating their plans in the near future. Those municipalities are Broadview, Brookfield, Clarendon Hills, La Grange, La Grange Park, Melrose Park, Oak Brook, Oakbrook Terrace, Schaumburg, Western Springs, and Wood Dale.
- Those municipalities without a comprehensive plan Elk Grove Village, Hillside, Hinsdale, North Riverside, and Stone Park – are encouraged to consider developing such a plan.
- Several municipalities could benefit from updating or amending their comprehensive plan to include recommendations for the following:
 - Natural resource management: Bellwood, Bloomingdale, Broadview, Brookfield, La Grange Park, Oakbrook Terrace
 - Groundwater pollution issues and mitigation: all municipalities
 - Transit-oriented development as part of their land use plan: La Grange Park, Bloomingdale



- Walking and biking as alternative modes of transportation: Broadview
- The Forest Preserve District of DuPage County should consider developing a Natural Resources Master Plan given that no current plan exists.

The following highlights are elements that certain plans have done well, and thus they can serve as examples for the other governing bodies in the watershed:

- Emphasizes infill development and redevelopment to help limit development in new areas: Addison, Berkeley, Downers Grove, Franklin Park, Maywood, Northlake, Schaumburg, and Westchester
- Emphasizes sustainable development using a natural resource management/best practice lens: Downers Grove, Elmhurst, Franklin Park, Itasca, Lombard, Northlake, Melrose Park, Roselle, Schaumburg, Westchester, Westmont
- Promotes the use of green infrastructure: Addison, Bensenville, Berkley, Bloomingdale, Brookfield, Downers Grove, Elmhurst, Franklin Park, Lyons, Maywood, Melrose Park, Roselle, Westchester, Westmont

4.2 BMP Implementation Projects

Used throughout the Lower Salt Creek planning area, with a particular focus in critical areas, the following BMPs are recommended to reduce nonpoint source pollutant runoff. Some of these solutions may be implemented at a localized level, such as green stormwater retrofits on private property, while others may require collaboration among county, township, municipal, and other partners, such as a dam modification/removal or stream channel restoration.

4.2.1 Urban Stormwater Infrastructure Retrofits

The urban retrofit practices described below are intended to provide examples of projects that should be implemented in urban areas to allow for improved pollutant removal and/or stormwater volume reductions. Many of the recommendations focus on retrofit opportunities.

It is important to reiterate that incorporating BMPs into new construction is much more costeffective and efficient than retrofitting existing systems. Site stormwater BMPs, beyond naturalized detention basins, should be incorporated at the time of initial design and built during initial construction. This approach offers the most options, providing the engineer with more flexibility and cost-effective solutions. The countywide stormwater ordinances and the municipal ordinances that follow its requirements provide strong support for the implementation of stormwater BMPs to specifically address the pollutants of concern in the Lower Salt Creek Watershed planning area.



A variety of urban BMPs could be used throughout the watershed, many of which could provide multiple benefits. This plan proposes the installation of bioretention (and biofiltration) and infiltration facilities, bioswales, permeable and porous pavements, detention basin retrofits, hydrodynamic separators, and building retrofits – such as planter boxes and green roofs – as the primary retrofit practices.¹⁶¹ Three objectives guided the identification of such "green infrastructure" urban retrofit projects included in this plan:

- Manage stormwater at the source;
- Use plants and soil to absorb, slow, filter, and cleanse runoff; and
- Recommend stormwater facilities that are simple, cost-effective, and enhance community aesthetics.

4.2.1.1 Infiltration Practices¹⁶²

Infiltration practices are designs that enhance the absorption of runoff through a soil matrix. These practices slow and retain stormwater runoff to facilitate pollutant removal. Increasing the time it takes for water to reach a nearby water body in smaller storm events also results in lower storm elevations and overland runoff that can cause localized flooding. Slowing runoff causes excess sediment and debris to drop out and to allow water to seep into the soil. Slowing runoff and allowing for infiltration reduces peak flows thereby reducing streambank erosion to improve water quality. Infiltration practices recommended throughout the Lower Salt Creek planning area include:

- *Bioswales* are vegetated channels that slow and filter pollutants from runoff. Pollutant removal ability increases when swales are planted with native vegetation as opposed to mowed turf grass. Rock check dams can be added to slow the flows through the swale, further increasing removal rates. They are commonly found along streets where existing roadside ditches can easily be converted to bioswales.
- *Bioretention facilities* (including r*ain gardens*) are excavated or natural depressions that collect, filter, and infiltrate runoff from surrounding impervious areas. They normally consist of a ponding area, mulch layer, amended soils, and plantings. They are often constructed in residential yards or adjacent to commercial buildings.
- *Infiltration trenches* are excavated trenches filled with rock. Stormwater runoff is directed to these trenches where it is retained within the void space and slowly infiltrates through the soil. One benefit of an infiltration trench is that it is completely

¹⁶² This section provided by Mary Beth Falsey, DuPage Co. Stormwater Management.



¹⁶¹ Stormwater BMPs are routinely grouped into categories based upon their unit processes. However, there is no set standard for grouping BMPs, nor should they be isolated into any single category when their use is evaluated. Individuals evaluating the use and applicability of BMPs should tailor the design to blend the benefits of various BMPs. For example, a vegetated swale (which provides settling and filtration of suspended solids by flowing through the surface vegetation) could be modified to include amended soil in the bottom of the swale along with check dams to improve infiltration and filtration through the soil media (which is a process more commonly associated with bioretention).

underground and can be covered with turfgrass, allowing it to blend in with surrounding lawn areas.

- *Green roofs* refer to vegetation being planted on the roof of a building. The roof is covered with a waterproof membrane and growing medium which allow for the establishment of vegetation. The system then allows stormwater to be captured, infiltrated, and eventually evapotranspirated back into the atmosphere, thereby reducing runoff and the pollutants that are carried with it.
- *Tree wells or planter boxes* are ideal for infiltration in urban landscapes where space is limited. They consist of depressed planting beds that capture and infiltrate runoff from surrounding roads, sidewalks, and parking lots.

Pollutant removal rates of infiltration practices can vary, but overall they are among the most efficient at removing pollutants due to the fact that all of the stormwater in smaller events is captured and infiltrated into the soil, eliminating runoff.

4.2.1.2 Impervious Surface Reduction¹⁶³

Converting impervious surfaces to permeable surfaces is an excellent way to reduce runoff volume and velocity, as well as treat stormwater. Permeable pavement in its many variations contains small voids that allow water to pass through to a stone base where runoff is retained and some sediments (TSS), metals, and oils are adsorbed or filtered out before allowing the stormwater to infiltrate into the ground or be conveyed through an underdrain system. Porous asphalt and porous concrete are poured in place while pavers are typically precast and installed in an interlocking array to create the surface. The use of permeable pavement in lieu of conventional pavement surfaces reduces the runoff volume and flow rates while maintaining

functionality. Permeable pavement can be applied to residential, commercial, and industrial areas as an alternative to traditional impermeable surfaces like sidewalks and parking lots.

Permeable pavements typically are applied to infiltrate stormwater. If underlying soils prohibit infiltration, an underdrain system will likely be required. The paving surface, subgrade, and installation requirements of permeable pavements are more complex than those for conventional asphalt or concrete



Permeable pavers at the Metra parking lot behind Brookfield Village Hall.

surfaces. Nonetheless, these pavements are particularly cost effective where land values are high and where flooding or icing is a problem.

¹⁶³ Portions of this section contributed by Mary Beth Falsey, DuPage Co. Stormwater Management.



When converting impervious surfaces is not an option, finding ways to disconnect impervious surfaces from one another can go a long way. Examples include disconnecting gutters from storm sewers, separating sidewalks from streets with parkways, and using flat or concave instead of mounded landscape features in between walkways and parking spaces.

4.2.1.3 Detention Basin Retrofits¹⁶⁴

Many of the detention basins in the Lower Salt Creek watershed planning area are typical of construction from the last half century and do a poor job of removing pollutants from stormwater runoff before releasing them. Some of the basins may even degrade water quality further. Modifying a detention basin for improved water quality involves many variables and takes a site-specific design approach. The following basin retrofits can offer big improvements to water quality within the basin and to downstream receiving waters.

- *Wetland shelf* Doubling as a safety feature, wetland shelves are made from soil and extend into the permanent pool from the traditional bank of a wet detention pond. T hey are usually constructed no more than 6 inches below the normal water level and planted with wetland vegetation. Wetlands in a detention basin absorb nutrients and protect the shoreline from eroding by buffering wind, waves and ice. Native vegetation can also deter goose populations that prefer turf and water edges.
- *Forebay* A forebay is a smaller, closed basin at the pond's inlet. A forebay acts as a settling basin, allowing sediments in the inflowing stormwater to settle out before entering the main basin and helping to prevent bottom sediments within the detention pond from being re-suspended by high flows. Forebays extend the life of the pond and make sediment removal easier.
- *Native vegetation on the slopes* Native vegetation includes species native to northeastern Illinois. Once established, native vegetation -- particularly herbaceous species with deep and complex root systems can reduce erosion, eliminate the need for fertilizers, deter geese, and filter and trap pollutants from overland flow.
- *Naturalized bottom* This retrofit involves modifying the design of a dry turf- bottom basin or traditional wet basin to incorporate sections of native mesic prairie and wetland vegetation as appropriate. These pond retrofits often feature a meandering low flow channel to handle low flows while allowing water to inundate the basin as needed. Wetland bottom ponds offer one of the highest levels of pollutant control, as well as the elimination of erosion, excessive algae growth, and overabundant Canada goose populations.
- *Constructed wetland detention --* Constructed wetland detention basins pull together the use of native slopes, forebay, and wetland bottom into the most effective basin design for filtering pollutants. Mimicking the pollutant removal mechanisms of natural wetlands, these carefully engineered facilities feature varying depths of wetland, permanent pools, and vegetation.

¹⁶⁴ This section contributed by Mary Beth Falsey, DuPage Co. Stormwater Management.



A wetland detention pond can remove up to 20% of nitrogen, 44% of phosphorus, 77% of BOD, and 63% of TSS. Retrofitting a dry detention pond with native vegetation can more than double its removal efficiency of phosphorus and TSS, while nitrogen and BOD removals are increased by more than 50%.¹⁶⁵

4.2.1.4 Hydrodynamic Separators¹⁶⁶

Hydrodynamic separators – commonly known as oil and grit separators – are manufactured structures designed to reduce the amount of oil, grease, and sediment reaching waterways. They are placed within the storm sewer system, typically within a catch basin, and rely on gravity to capture the pollutants that will settle and float. Pollutant removal effectiveness varies widely among these proprietary devices. Particle size distribution is an important factor to consider when choosing a device. Many pollutants attach to fine particles such as silts, clays and colloids, and these finer particles contribute much of the sediment in DuPage County. Hydrodynamic separators are most effective when they are designed to target and treat runoff from small, frequent rain events. They should be designed to treat a specific storm runoff volume and to prevent resuspension of pollutants in higher events. Devices must be maintained regularly in order to be continuously effective.

Oil and grease separators are designed specifically to treat roadway runoff for oil, grease, floatables and sediment. Manufacturer specifications vary, but a typical oil and grit separator can remove more than 97% of oil from the first flush runoff from roadways. Installation of these practices over even 2% of the watershed could have a measurable impact, particularly when located along major thoroughfares and in high traffic and parking areas.

4.2.2 Stream Channel and Riparian Restoration

4.2.2.1 In-Stream and Streambank Practices167

Stream restoration projects focus on improving channel sinuosity, installing natural features such as riffles and pools, stabilizing eroding streambanks, removing concrete-lined channels, and daylighting enclosed stream sections. Water quality benefits of stream restoration projects include reducing streambank erosion, trapping suspended sediment, re-oxygenating the water column, and reconnection to the floodplain. In-channel restoration also provides habitat that supports the propagation of fish and macroinvertebrates.

¹⁶⁷ This section contributed by Mary Beth Falsey, DuPage Co. Stormwater Management.



¹⁶⁵ National Pollutant Removal Performance Database, Illinois Green Infrastructure Study, approved watershed plans (CMAP Boone-Dutch Creek), and STEPL.

¹⁶⁶ This section contributed by Mary Beth Falsey, DuPage Co. Stormwater Management.

Streambank stabilization involves regrading of bank slopes and using deep rooted native vegetation and/or materials such as riprap or woody debris to stabilize stream, river, or ditch banks in order to protect them from erosion or sloughing. Stream stabilization has numerous benefits including:

- Stabilization of banks and shores, preventing further erosion and degradation;
- Water quality improvement by reducing sediment loads in surface waters;
- Maintenance of capacity of waterways to handle floodwaters, preventing flood damage to utilities, roads, buildings and other facilities;
- Reduction of expenses for dredging accumulated sediment from lakes and drainage ditches;
- Enhancement of habitat for fish and other aquatic species by improving water quality and moderating water temperature; and
- Creation of riparian habitat for wildlife.

Some streams and drainage ways in the watershed were lined with concrete in previous attempts at bank stabilization. Removal of such concrete lining and implementation of channel and bank restoration practices will help reestablish natural stream functions and provide habitat while reducing the negative effects of channelization and erosion on downstream properties.

Similarly, sections of the stream network are enclosed in pipes. Although there is no erosion within the pipe, pipes often cause more problems for water quality, downstream flooding, and stream health than they solve in convenience. When such a stream is restored, open to the air and sunlight, it is referred to as "daylighting" the stream.

4.2.2.2 Dam and Culvert Modification¹⁶⁸

Dam modifications or removals are gaining popularity for their cost-effective benefits to streams and rivers. They inherently return the waterway and its ecosystem to its natural flow. Dams create a barrier that inhibits fish passage and can cause to low dissolved oxygen levels in the dam pool. Dam modification projects involve removing or altering the dam, creating instream habitat, such as pools and riffles, and installing native vegetation where practical.

Road culvert crossings also can restrict streamflow, inhibit fish passage, and contribute to low dissolved oxygen levels. Existing culverts should be fully evaluated to determine where these restrictions exist and retrofits proposed to expand culvert size and/ or place them at lower elevations to allow unrestricted flow and fish passage.

¹⁶⁸ This section contributed by Mary Beth Falsey, DuPage Co. Stormwater Management.



4.2.2.3 Riparian Buffer Establishment

Riparian buffers are vegetated areas next to streams and lakes that protect the waterbody from nonpoint source pollution, promote bank stabilization, and provide aquatic and wildlife habitat. Ideally, riparian buffers should be composed of native vegetation including grasses or trees, or both. Riparian corridors have been impacted throughout the Lower Salt Creek planning area by human activities. Some of these activities include turf grass management up to the stream or lake shore, and commercial and industrial facilities immediately adjacent to the stream. The establishment of new riparian buffers in the watershed will likely present challenges, given that the buffer areas are generally impacted in order to meet the needs of the property owners. However, numerous opportunities exist within the watershed where buffers can be established.

4.2.3 Chloride Reduction Strategies¹⁶⁹

4.2.3.1 Road Salt Storage and Applications

As detailed in section 3.7.3, road salt is the primary source of chloride water quality violations in our rivers and streams. When road salt is used as part of winter maintenance strategies; all salt applied to roadways, parking lots and sidewalks is effectively added to the water column. Thus, it is incumbent that those who use road salt use it as efficiently as possible, applying the right amount at the right time as required for any given winter storm¹⁷⁰ situation. Efficiencies apply to both salt storage, to minimize any loss of road salt, and in applications, to apply the correct amount of salt and to ensure that the salt stays on the pavement surface until it has served its purpose.

Review of Existing Best Management Practices (BMPs)

There are several documents that examine BMPs for road salt storage and usage. One of the more recent is the report by the AASHTO Clear Roads pooled fund consortium entitled *"Manual of Best Management Practices for Road Salt in Winter Maintenance"* which is available at http://clearroads.org/project/roadway-salt-best-management-practices/ (accessed April 6, 2017). This manual considers BMPs for road salt procurement, storage and applications and is the primary reference manual used by the DRSCW in its chloride reduction efforts.

Some of these best practices are mandated by the State MS4 permit, where this is the case it is noted. For simplicity, the best practices for these storage and applications are considered separately.

¹⁷⁰ For the purposes of this document, a winter storm situation would include frost events as well as snow fall, freezing rain, and sleet.



¹⁶⁹ This section written by Stephen McCracken, DRSCW, and provided to CMAP via email Nov. 3, 2017.

Salt Storage Best Practices

The purpose of these best practices is to minimize any loss of road salt due to precipitation onto the stockpile, or water running into the storage area, and also to protect the ground upon which the salt is stored.

The following best storage practices are recommended for adoption by all agencies with winter snow fighting responsibilities in the plan area who store salt. MS4 permit holders must store deicing agents in a permanent storage structure and tarp any materials temporarily stored outside that structure. The permit requires Permittees who do not have a permanent storage structure but store deicing materials must construct permanent storage structure by March 1 2018.

- 1. Road salt must be stored on an impermeable pad at all times. Temporary storage on permeable surfaces is not acceptable. All pads must be under cover to eliminate exposure to precipitation.
- 2. Pads must be constructed so that rain water or other precipitation does not drain onto the pad. Any rain that drains onto the pad must be drained to a collection point, preferably a specially designed sump area.
- 3. Salt that is temporally not stored under a permanent structure must be covered by tarping, for example, except when the stockpile is in active use. Such piles should not be placed near storm drains or in areas that are likely to flood.
- 4. If the agency regularly stores smaller salt piles (5,000 tons or less) outside of a permanent structure the agency with such stockpiles should develop a plan to construct covered storage capable of containing an average year's use of salt.
- 5. All salt storage facilities must have policies in place for "good housekeeping" when salt is being placed into storage, and moved from storage into trucks (either for winter maintenance purposes or for movement to other storage facilities). These policies must reflect the particular conditions on site, but should be aimed at ensuring that as little salt as possible is spilled during these trans-shipment processes, and that any salt which is spilled should be swept up and returned to storage in a timely manner to minimize any loss of salt.
- 6. All employees involved in salt storage must undergo training annually on best practices for road salt storage.
- Additional information on salt storage is available in the Salt Institute "Safe and Sustainable Salt Storage Handbook" which may be accessed at: <u>http://www.saltinstitute.org/wp-content/uploads/2013/09/Salt-Storage-Handbook-2015.pdf</u> (accessed on 5/10/17).
- 8. Local units of government are recommended to adopt a storage ordinance covering private salt piles. Examples of such ordinances can be found at http://drscw.org/wp/model-ordinances/

Road Salt Applications Best Practices

The purpose of these best practices is to ensure that only as much salt as needed is placed upon the road during winter maintenance operations. The purpose of road salt in such operations is



not to melt snow or ice, but rather to prevent the bond of snow or ice to the pavement. If snow or ice has already bonded to the pavement the purpose of the salt is to break the bond. As a strategy, the best practice in winter maintenance is to anti-ice, that is to place road salt (in either liquid or solid form, but more often as a liquid brine) on the road surface prior to the start of a winter event, thus providing a protective layer that prevents snow and ice from bonding to the road surface. However, experience has shown that it takes several years for an agency to transition from more traditional winter maintenance operational strategies to anti-icing, so a series of actions leading toward anti-icing are presented here as best practices.

The following best practices will be required or recommended for dischargers who run snow fighting operations – these best practices are not pertinent to those dischargers that are simply and solely salt storage facilities. They are, however, somewhat applicable to all classes of dischargers, to the extent that all of these classes clear snow and ice from their own facilities.

- All salt spreading equipment, whether designed to spread dry road salt, pre-wet road salt or salt brine, must be calibrated at least annually. Whenever the hydraulics on a truck are adjusted or repaired, the spreader equipment will need recalibration. Records of the calibration results must be maintained for each piece of spreading equipment. Proper calibration of equipment can reduce salt application by 50% or more, depending upon how far out of calibration the equipment was originally.
- 2. Using pre-wet road salt allows an agency to reduce salt application rates by 30%. Pre-wetting can be accomplished in two ways by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road. It is generally accepted that the second method is more efficient, but requires modification to spreading equipment, and that an agency have storage capacity for liquid chemicals (most typically salt brine, but other chemicals can also be used). Agencies must make use of pre-wetting, either using treated salt in the stockpile, or preferably by use of liquids applied on the truck during the spreading process.
- 3. The quantity of salt applied to the road should vary according to the pavement temperature. Accordingly, agencies must have equipment that allows them to measure the pavement temperature. While it may take some time to equip the complete winter maintenance fleet with temperature measuring devices, agencies must, at the start of the variance period, have pavement temperature sensors on enough vehicles to provide operational information during storms that allow salt application rates to be adjusted to the most efficient levels.. This requirement is a pre-requisite for the requirement detailed in item 4 below.
- 4. Agencies should adopt or develop a chart with suggested application rates that are a function of storm type and pavement temperature. An example of such a chart is available in the *"Manual of Best Management Practices for Road Salt in Winter Maintenance"* referenced above. Additionally, agencies should develop a methodology whereby they can determine whether each truck in their fleet applied salt at the recommended rate, and if not, why the variation from the recommended rate occurred and what needs to be changed in their procedures to be sure that the variation only occurs when strictly



necessary. Varying application rates according to pavement temperature allows for reductions in total applications of as much as 50% or more.

- 5. As pavement temperatures decline, salt takes longer to go into solution and thus to become effective. Practice has shown that once pavement temperatures drop below 15° F the time for salt to go into solution is such that it is often plowed off the road by subsequent operations before it can be effective. Clearly, this is not an optimal use of road salt. Agencies must develop procedures for those rare situations when pavement temperatures drop below 15° F, including methods to track when these situations occur and what actions were taken under these extreme conditions. Avoiding application of salt in conditions where pavement temperatures are too low obviously results in a 100% reduction in salt usage for those conditions.
- 6. Agencies must have in place a methodology to track how much road salt was applied during each storm, together with some measure of how operationally severe the storm was. While this methodology does not result in a reduced application rate *per se*, it does address the issue that "if you do not measure it you cannot manage it."
- 7. Anti-icing has been shown to allow agencies to achieve their desired levels of service using about a quarter of the salt that a more traditional de-icing operational strategy requires to achieve the same levels of service (i.e. as much as a 75% reduction in salt application totals). Accordingly, agencies must develop a plan with clearly delineated milestones for the implementation of anti-icing in their agency.
- 8. All employees involved in winter maintenance operations must undergo annual training in best practices in the use of road salt in such operations. Annual training in snow and ice management is required under the State MS4 permit.

4.2.3.2 Status Review of Winter Road Management Best Practices Adoption

In 2016, the DRSCW sent questionnaires to all agencies responsible for winter transportation management in the Upper DuPage River and Salt Creek watersheds (County DOTs, Municipal Public Works, Township Highway Departments, Illinois Tollway, and Illinois DOT). Twenty-two agencies in the Lower Salt Creek planning area responded. Their responses are summarized below.

Salt Storage

• All 22 respondents had a storage area; 15 reported a single storage area; 7 reported two or more.

The responses indicated the following salt storage practices:

- Four of the 22 respondents reported having a storage area that was not enclosed.
- One agency reported not having an imperious pad.
- Five agencies reported piles that were not stored in permanent structures.
- Nineteen agencies reported protocols for sweeping up spills around storage; 3 did not.
- 21 reported tarping or other protection for excess salt.



Equipment Calibration

- 19 agencies reported equipment calibration with one reported calibration following equipment repairs.
- 3 agencies reported not performing calibration activities.

Deicing, Anti-Icing, Pre-Wetting, and Deicing Agents

Information about deicing, pre-wetting, and anti-icing practices, as well as the deicing agents used, was requested in the survey. The following is a list of deicing agents used by respondents:

- 14 agencies reported using pre-wetting of solids.
- 10 agencies reported using anti-icing.
- 6 agencies reported no use of liquid at all.
- 19 agencies still use dry rock salt in some form.

In most cases, the anti-icing program included occasional pre-salting or liquid application in priority locations. This suggests an increase in the number of agencies implementing anti-icing practices watershed wide.

The 2016 survey asked about liquid anti-icing mixes. Generally, most respondents using liquids make on site a blend of 70% - 90% salt brine and 10% - 30% beet juice, pre-manufactured liquid, and/or calcium chloride.

Road Temperature Data Collection

• 14 agencies reported using pavement sensor equipment and data, 8 agencies reported not using it.

Application Rates

Only 12 of the 22 respondents reported their application rates. For a snowfall of 3 inches, the most common application rate is in the range of 200-300 pounds per lane mile (11 agencies), with one agency reporting 300-400 pounds per lane mile.

4.2.4 PAH Reduction Strategies

As described in section 3.7.4, polycyclic aromatic hydrocarbons (PAHs) have documented negative effects on aquatic life. Given the high levels of PAHs observed in Salt Creek's sediments and the known impacts on aquatic life, the following actions are recommended:

- Encourage municipalities to sign onto the DRSCW MOU
- Encourage home rule municipalities to ban the use of coal tar based sealants within their jurisdiction
- Encourage homeowners to use asphalt-based or other non-coal tar based sealants



• Encourage institutions (hospitals, school districts, churches) to use asphalt-based or other non-coal tar based sealants

4.2.5 Watershed-wide Urban Stormwater Retrofit BMP Scenarios

To allow for potential projects that may be imagined in the future and were not specifically submitted by stakeholders as a site-specific BMP (see next section), scenarios were chosen to estimate the potential load reductions from urban retrofit practices distributed throughout the Lower Salt Creek watershed planning area. Stakeholders have discretion of where such BMP projects may be installed in the watershed.

The scenarios modeled treat 20% to 36% of each subwatershed. DCSM determined the percent of each subwatershed's land area to be treated by each BMP and conducted the pollutant load reduction modeling. Assumptions were made regarding design drainage area ratios, contributing land use, and unit costs for each BMP type (Table 67). A summary of the pollutant load reduction and planning level cost estimates by subwatershed are provided in Table 68.

Appendix G provides details including BMP distributions by subwatershed.

BMP Type	% Sub'shed	Design Drainage		Remova	al Rate	
	Treated	Area Ratio	N	Р	BOD	TSS
Bioretention/Rain garden	2-4%	30:1	43%	81%	60%	78%
Bioswale	2-4%	4:1	8%	18%	0%	48%
Permeable Pavers	3-5%	10:1	0%	40%	0%	80%
Biofiltration:						
Filterra	2-3%	1000:1	45%	70%	0%	85%
Bacterra	3-5%	1000:1	0%	0%	98%	0%
Detention Basin Retrofit	4-6%	50:1	55%	69%	63%	86%
Green Roof	1-3%	5:1	25%	25%	0%	72%
Oil & Grit Separator	1-2%	100:1	5%	5%	0%	15%
Infiltration Trench	2-3%	10:1	55%	60%	0%	75%
Total	20-36%					

Table 67. Urban stormwater retrofit BMP distributions, design drainage area ratio, and BMP removal rates.



Table 68. Summary of pollutant load reduction and implementation cost estimates for the watershed-wide urban stormwater retrofit BMPs, by subwatershed.

Subwatershed		Nitrogen Reduction (lbs/yr)	Phosphorus Reduction (lbs/yr)	BOD Reduction (lbs/yr)	Sed. Reduction (tons/yr)	Estimated Cost (\$)
1	Salt Crk North	1929	494	7957	163	\$ 169,623,538
2	Salt Crk Central	5723	1590	22331	593	\$ 440,829,291
3	Salt Crk South	1829	435	8001	92	\$ 173,912,632
4	Salt Crk Southeast	3430	886	14736	260	\$ 275,313,760
5	Devon Ave. Trib.	1648	423	6435	91	\$ 112,590,408
6	Spring Brook Crk	5240	1323	19843	302	\$ 393,781,935
7	Westwood Crk	2669	693	10448	158	\$ 211,668,028
8	Sugar Crk	958	243	4394	48	\$ 89,891,118
9	Oak Brook Trib.	336	73	1831	16	\$ 29,860,642
10	Ginger Crk	1780	423	7683	84	\$ 134,981,179
11	Bronswood Trib.	724	173	3279	36	\$ 71,952,807
12	Addison Crk North	1399	350	5581	70	\$ 118,912,660
13	Addison Crk Cntral	7312	1933	29799	403	\$ 495,335,997
14	Addison Crk South	3249	859	13746	175	\$ 237,104,174
	Totals	38,225	9,897	156,064	2,490	\$2,955,758,170



4.2.6 Site-Specific BMPs

More than 250 potential site-specific best management practice (BMP) projects were identified throughout the Lower Salt Creek planning area by stakeholders (Figure 77, Appendix H). Submittals were made primarily through an online survey tool prepared by CMAP using a MetroQuest¹⁷¹ public engagement platform. The survey platform was available for public entries from mid-June through November 2017. Thereafter, several BMPs were submitted by stakeholders via email.

BMP submittals were grouped under the primary categories of Hydrologic, Urban, and Other (which includes outreach and education, planning, and lake-related practices); no Agricultural or Livestock BMPs were submitted. Hydrologic BMPs included streambank and shoreline protection, stream channel restoration (re-meandering, daylighting), stream channel stabilization (riffles), dam modification/removal, and wetland restoration/creation. Urban BMPs included bioretention/bioinfiltration facilities, bioswales, urban filter strips/riparian buffers, porous and permeable pavements, and detention creation/retrofits. Other BMP types included education and outreach activities, environmental monitoring, and in-lake practices.

Pollutant load reduction estimates were provided by DuPage County Stormwater Management (DCSM) staff unless provided by the BMP submitter. DSCM staff utilized U.S. EPA's Spreadsheet Tool to Estimate Pollutant Loads (STEPL) to estimate the potential pollutant reductions for the following BMP types where enough information (particularly BMP size or linear extent) was available from the submitters: Bioretention/Bioinfiltration/Rain Garden, Bioswale, Detention Creation/Retrofit, Wetland Creation/Restoration, Urban Filter Strip/Riparian Buffer, Porous and Permeable Pavements, and Streambank Stabilization. Cost estimates were made by DCSM unless provided by the BMP submitter. DCSM used unit costs derived from various sources including DuPage County projects and other watershed-based plans in the Chicago region (Table 69). Table 70 summarizes and Appendix H provides more details regarding the estimated pollutant reductions and total planning level costs for these site-specific projects.

¹⁷¹ <u>https://metroquest.com/</u>



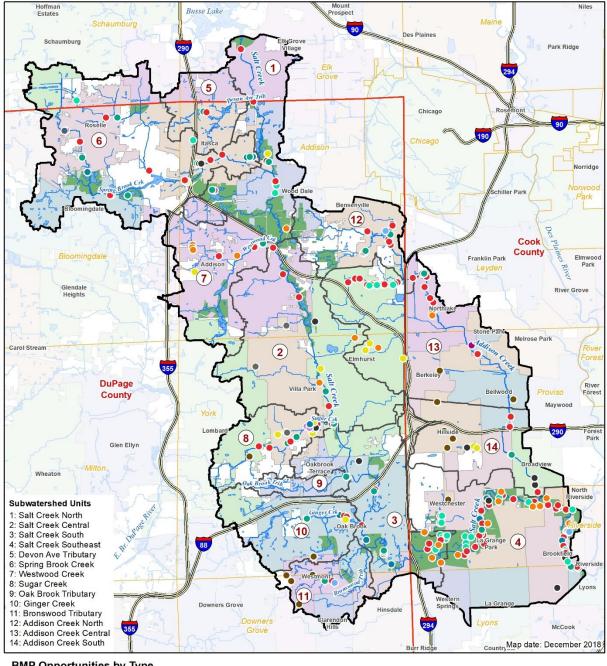


Figure 77. Site-specific BMP opportunities in the Lower Salt Creek planning area as identified by stakeholders.

BMP Opportunities by Type

- Aquatic Plant Establishment
- . Dam Modification / Removal
- . Detention Creation / Retrofit
- . Dredging
- . Education / Outreach / Planning
- . Flood-Prone Property Acquisition
- 0 Monitoring
- . Nutrient Inactivation
- . Porous / Permeable Pavement
- Retention / Infiltration Facility •
- Sediment Basin
- . Stream/Shoreline Restoration/Stabilization
- . Subsurface Drain
- Urban Filter Strip / Critical Area Planting
- Wetland Creation / Restoration

Miles

DRSCW





Chicago Metropolitan Agency for Planning

ВМР Туре	Unit Cost (\$)		
	Used for site-	Used in the	
	specific BMPs	watershed-wide	
		BMP scenarios	
Bacterra unit		\$10,000 each	
Bioretention/Bioinfiltration Facility	\$1,500,000/ac	\$1,045,440/ac	
Bioswale	\$550,000/ac	\$1,045,440/ac	
Convert Concrete-lined Channel to	\$348,480/ac		
Grassed Waterway			
Critical Area Planting	\$2,000/ac		
Detention Basin Retrofit		\$1,368,841/ac	
Dry Detention Basin Naturalization	\$320,000/ac		
Filterra unit		\$10,000 each	
Green Roof		\$522,720/ac	
Infiltration Trench		\$1,045,440/ac	
Oil & Grit Separator		\$8,000 each	
Porous & Permeable Pavements	\$785,000/ac	\$1,306,800/ac	
Shoreline Stabilization	\$150-\$216/lin ft		
Streambank/Channel Stabilization	\$216/lin ft	\$216/lin ft	
Urban Filter Strip/Riparian Buffer	\$56,835/ac		
Urban Wetland	\$390,000/ac		
Wetland Restoration	\$14,000/ac		

Table 69. Assumed unit costs for select BMPs.

Additionally, numerous site-specific detention basin retrofit BMP opportunities were identified through the detention basin inventory and assessment work conducted as part of this plan's development (Appendix B, Figure 36 and Figure 37). Of the more than 800 detention basins assessed, more than half (probably on the conservative side) were identified by their assessor to be a candidate for water quality improvement retrofits, such as conversion of concrete lined channels to vegetated swales/ bioswales/ infiltration trenches, naturalization of turf bottom basins, modification of outlet control structures, establishment of wetland shelves in wet basins, addition of berms to create longer flow paths, and establishment of native vegetation buffers. Those stormwater basin retrofits that weren't specifically cited by stakeholders among the site-specific BMPs are assumed incorporated into the watershed-wide scenarios presented in the next section.



Subwatershed		# of BMPs submitted	Nitrogen Reduction (lbs/yr)	Phosphorus Reduction (lbs/yr)	BOD Reduction (lbs/yr)	Sed. Reduction (tons/yr)	Estimated Cost (\$)	
1	Salt Crk North	12	135	135 40 487		51	\$ 10,636,710	
2	Salt Crk Central	13	249	72	574	93	\$ 4,512,410	
3	Salt Crk South	20	213	73	452	96	\$ 7,221,020	
4	Salt Crk Southeast	65	106	18	398	9	\$ 22,204,644	
5	Devon Ave. Trib.	2	19	2	68	1	\$ 2,023,448	
6	Spring Brook Crk	29	209	69	683	84	\$ 6,797,239	
7	Westwood Crk	9	241	77	392	94	\$ 4,640,710	
8	Sugar Crk	23	8,123	2,602	710	1,814	\$ 18,271,842	
9	Oak Brook Trib.	2	53	18	143	24	\$ 620,505	
10	Ginger Crk	10	76	23	261	29	\$ 4,073,610	
11	Bronswood Trib.	7	82	25	427	22	\$ 2,554,555	
12	Addison Crk North	14	449	162	1,019	218	\$ 5,766,020	
13	Addison Crk Cntral	29	190	67	1,130	51	\$ 136,227,025	
14	Addison Crk South	16	303	85	869	97	\$ 55,790,909	
	Totals	251	10,446	3,334	7,612	2,685	\$ 281,340,647	

Table 70. Summary of pollutant load reduction and implementation cost estimates for the site-specific BMPs, by subwatershed.

Load reduction values should be considered conservative since numerous BMPs could not be modeled due to absence of adequate information (e.g., BMP size or linear extent) from the submitter.



4.2.7 Summary of Watershed-wide and Site-specific BMP Implementation Projects

Table 71 presents the compilation of the waterside-wide and site-specific BMP types identified in this plan, along with their associated pollutant load reduction and implementation cost estimates. As can be seen, there can be significant reductions in pollutant loads, although the costs to retrofit the built environment and restore natural areas to improve and protect water quality can be astounding. This puts into perspective the importance of putting into place effective plans, policies, codes, and practices to protect our land and water resources prior to land development even more compelling.

ВМР Туре	Scenario	Est. Qty.	U n it	N Reduc. (lbs/yr)	P Reduc. (lbs/yr)	BOD Reduc. (lbs/yr)	Sed. Reduc. (t/yr)	CL Reduc. (t/yr)	Estimated Cost (\$)	
Aq. Plant Estab.	SS	n/a	a c	n/a	n/a	n/a	n/a	n/a	\$	20,000
Bioretention / Bioinfiltration / Rain Garden	SS	7.34+	a c	136+	22+	546+	3+	n/a	\$	11,361,363+
Bioretention / Bioinfiltration / Rain Garden	ww	65	a c	6628	2033	33152	347	n/a	\$	68,188,646
Biofiltration: Filterra	WW	74,810	#	6124	1550	n/a	329	n/a	\$	748,095,171
Biofiltration: Bacterra	ww	100,381	#	n/a	n/a	57,358	n/a	n/a	\$	1,003,810,187
Bioswale	SS	21.25+	a c	1+	0.3+	5+	0.1+	n/a	\$	762,500+
Bioswale	WW	471	a c	1194	438	n/a	208	n/a	\$	492,527,850
Chloride reduc. strategies	WW	19,300	t	n/a	n/a	n/a	n/a	19,300	\$	
Critical Area Planting	SS	55+	a c	n/e	n/e	n/e	n/e	n/a	\$	110,000+
Dam Removal / Modification	SS	13	#	n/a	n/a	n/a	n/a	n/a	\$	701,500+
Detention Basin Retrofit / Creation	SS	23.41+	a c	269+	44+	1242+	11+	n/a	\$	125,000,962
Detention Basin Retrofit	ww	67	a c	14376	2932	59049	647	n/a	\$	23,459,754
Dredging	SS	5	#	n/a	n/a	n/a	n/a	n/a	\$	80,000+
Education & Outreach / Planning	SS	11	#	n/a	n/a	n/a	n/a	n/a	\$	555,000
Flood-prone Prop. Acquisition	SS	tbd	#	n/a	n/a	n/a	n/a	n/a	\$	1,329,471

Table 71. Summary of site specific and watershed-wide BMP implementation projects' estimated
pollutant load reduction and implementation costs, by BMP type.



ВМР Туре	Scenario	Est. Qty	U n it	N Reduc. (lbs/yr)	P Reduc. (lbs/yr)	BOD Reduc. (lbs/yr)	Sed. Reduc. (t/yr)	CL Reduc. (t/yr)	Estimated Cost (\$)	
Grassed Waterway	SS	0.33	a c	n/e	n/e	n/e	n/e	n/a	\$	114,998
Green Roof	ww	248	a c	2494	408	0	209	n/a	\$	129,678,657
Infiltration Trench	SS	tbd	a c	n/e	n/e	n/e	n/e	n/a	\$	n/e
Infiltration Trench	ww	163	a c	7002	1243	0	276	n/a	\$	170,774,349
Monitoring	SS	5	#	n/a	n/a	n/a	n/a	n/a	\$	n/e
Nutrient Inactivation	SS	1	#	n/e	n/e	n/e	n/e	n/a	\$	10,000
Oil & Grit Separator	ww	1039	#	407	66	0	36	n/a	\$	8,308,465
Permeable / Porous Pavements / Pavers	SS	26.02+	a c	180+	25+	n/a	4+	n/a	\$	20,414,630+
Permeable / Porous Pavements / Pavers	ww	238	a c	n/a	1227	n/a	437	n/a	\$	310,915,091
Sediment Basin	SS	0.3	a c	n/a	849	n/e	527	n/a	\$	67,050
Shoreline Protection (stabilization)	SS	17,470	ft	329+	160+	86+	166+	n/a	\$	3,525,216
Stream Channel Restoration (meanders)	SS	15,370	ft	109+	42+	218+	59+	n/a	\$	10,553,600+
Stream Channel Stabilization (riffles)	SS	24,380	ft	620+	250+	1063+	344+	n/a	\$	58,672,250+
Streambank Protection / Stabilization	SS	75,916+	ft	1202+	503+	1710+	646+	n/a	\$	26,273,957+
Subsurface Drain	SS	190	ft	n/a	n/a	n/a	n/a	n/a	\$	165,000+
Urban Filter Strip / Riparian Buffer	SS	94.7+	a c	4710+	655+	934+	403+	n/a	\$	5,884,319+
Wetland Creation	SS	22.45	a c	2830	770	1305	515	n/a	\$	6,068,011
Wetland Restoration	SS	78.43	a c	59	13	504	5	n/a	\$	9,670,820
TOTALS				48,671	13,231	157,171	5,175	19,300	\$	3,237,098,817+
Notes: ac = acre				N = nitrog	jen					

SS = site specific WW = watershed-wide

ft = feet# = number N = nitrogen P = phosphorus

Sed. = sediment

n/a = not applicable

conservative value

lb = pounds t = tons

n/e = not estimated

+ = denotes potentially

BOD = biological oxygen demand CL = chloride

Reduc.=- reduction



4.2.8 Summary of Pollutant Loads and Potential BMP Pollutant Load Reductions

The following table (Table 72) presents the nitrogen (N), phosphorus (P), biological oxygen demand (BOD), and sediment (Sed.) pollutant loadings estimated in this plan by general sources; the estimated pollutant load reductions from implementation of the watershed-wide (WW) and site-specific (SS) BMPs identified in this plan; and the percent reduction if all the identified BMPs were to be implemented.

Pollutant Load	N Load (lb/yr)	P Load (lb/yr)	BOD Load (lb/yr)	Sed. Load (t/yr)
Land use-based	489,915	78,507	1,764,551	11,542
Streambank erosion ^a	8,399	2,587	21,230	3,544
Shoreline erosion ^b	43	17	86	24
Totals	498,357	81,111	1,785,867	15,110
BMP Load Reduction	N Reduc. (lb/yr)	P Reduc. (lb/yr)	BOD Reduc. (lb/yr)	Sed. Reduc. (t/yr)
WW urban SW retrofits	38,225	9,897	156,064	2,490
WW streambank / shoreline stabilization ^c	4,221	1,302	10,658	1,784
SS BMPs ^d	10,446	3,334	7,612	2,685
Totals	48,671	13,231	174,334	5,175
Pollutant Load after BMP Load Reduction	445,465	66,578	1,611,533	8,151
Percent Load Reduction	10.6%	17.9%	9.8%	46.1%

Table 72. Summary of pollutant loads and potential BMP load reductions.

a: loadings estimated only for "heavy" and "severe" erosion areas on assessed stream segments

b: loadings estimated only for Lake Charles and Swan Lake

c: based on 50% of the estimated streambank and shoreline erosion loadings

d: conservative values (load reductions were unable to be estimated for all of the BMPs submitted due to lack of adequate information provided)

4.3 Public Information, Education, and Outreach

Community engagement, education, and outreach are essential components of any watershed protection efforts. Such activities are crucial to the implementation of a watershed plan since they:

- Raise awareness of local water resource issues and foster support for solutions;
- Provide tools to help motivate changes in behavior among stakeholders and other targeted audiences;



- Provide engaged stakeholders with the necessary tools to become watershed stewards and help implement the watershed plan;
- Leverage partnerships among stakeholders and other public and private entities to implement watershed recommendations.

Effective education and outreach is crucial to a watershed plan's success since many watershed problems often result from human actions and solutions. Furthermore, the general public is often unaware of the impact their day-to-day activities have on watershed health and solutions are often voluntary. Education and outreach activities can help raise awareness of threats to local water resources and help motivate changes in behavior to improve watershed health and water quality.

There are a number of strategies that may be appropriate to conduct successful outreach and education campaigns. This section of the plan identifies the types of targeted audiences, priority education topics, potential outreach activities, and partners to help implement these actions.



4.3.1 Resources for Watershed Information and Education Outreach Campaigns

There are many resources available to assist in developing an effective watershed information and education outreach campaign. U.S. EPA's *Getting in Step: a Guide for Conducting Watershed Outreach Campaigns* (2003) and CMAP and Illinois EPA's *Guidance for Watershed Action Plans in Illinois* (2007) are two recommended sources. Not-for-profit organizations provide information, outreach materials, volunteer opportunities, and other resources applicable to watershed protection. These organizations include the nationally renowned Center for Watershed Protection (CWP) and Center for Neighborhood Technology (CNT) along with a wide range of local organizations such as The Conservation Foundation, School & Community Assistance for Recycling and Composting Education (SCARCE), Environment and Nature Training Institute for Conservation Education (ENTICE), Chicago Zoological Society (CZS), Sierra Club, Illinois Paddling Council, Kane-DuPage Soil and Water Conservation District, North-Cook Soil and Water Conservation District, Salt Creek Watershed Network, DuPage River Salt Creek Workgroup (DRSCW), and many others.

4.3.2 Tools to Conduct a Successful Outreach Campaign

4.3.2.1 Establishing a Sense of Place

People will feel more connected and protective of a place, in this case local watersheds, if they know when they are in that place and why it is special. There are many features within the Salt Creek Watershed planning area including rich and rare ecosystems, regional trails, vast scenic



landscapes, and both urban and rural character that help make these watersheds a special place. Outreach activities should be designed to help foster a sense of place among community members and visitors.

4.3.2.2 Identifying and Understanding the Audience

Identifying the targeted audience (s) based on their ability to implement actions of the watershed plan is an essential first step in conducting a successful outreach campaign. Once identified, targeted audiences should be broken down into the smallest segment possible to achieve the best results. Messaging should be created that resonates with the targeted audience and inspires them to act. Targeted audiences for future outreach campaigns include the following:

- **Volunteers**: local residents, environmental organizations interested in managing water resources within the watershed.
- **Residents and Landowners:** local residents, homeowners associations, businesses, institutions, civic organizations.
- **Government officials and agencies:** municipalities, townships, counties, forest preserve and conservation districts, park districts, schools, library districts, drainage districts.
- Land and resource managers and organizations: environmental organizations, homeowners associations, lake management associations, business and institutional facility managers, nurseries, agricultural producers, environmental organizations, special interest groups.
- **Developers:** contractors, consultants, developers, and homebuilders working in the watershed.
- **Students:** primary and secondary schools in the planning area.

Knowing some information about the target audience(s) is essential. Campaign audiences have varied values and beliefs, and they will not necessarily be the same as those implementing the watershed plan. The following is a list of a few questions that are important to know about the target audience(s), before education and outreach activities begin:

- What does the audience know already?
- What are their existing beliefs and perceptions?
- How does the audience receive messages and information?
- What will make the audience change their behavior?
- Other important factors include education, age, culture, and religion.

In order to create a successful education and outreach campaign, it is necessary to understand the audience(s). What causes the audience to engage in the behaviors we want to change? How can we most effectively convey that message to them? How can we motivate the audience(s) to change? The understanding of the audience can be completed at the same time or subsequent to identifying the audience(s). Surveys, focus groups, and even simple observations can lead to a greater understanding of the audience and a successful campaign.



4.3.2.3 Setting Outreach Priorities for Targeted Audiences

Once the targeted audience has been identified and understood, outreach priorities and activities for targeted audiences should be identified. These should directly support the watershed management plan's goals thereby aiding successful plan implementation. Stakeholders identified the following goals, which serve as priority topics for education and outreach activities.

- Improve and protect the ecological integrity of surface water resources to attain or maintain designated uses of aquatic life support, fish consumption, primary contact, and aesthetic quality.
- Protect, restore, and expand natural areas and increase native aquatic and terrestrial plant and animal species diversity.
- Reduce flooding and attendant streambank and shoreline erosion and infrastructure risk through initiatives to improve and protect water quality.
- Continue to build, strengthen, and support local partnerships and expertise to protect streams, lakes, and wetlands via plan implementation.
- Continue to raise public awareness and increase understanding of the impacts of land use and land/water management decisions on water and habitat quality, and further encourage implementation of watershed protection practices.

4.3.2.4 Choosing Message Formats and Delivery Methods

There are a number of communication tools to help support successful outreach campaigns. Each may be customized to support the education effort and help foster relationships and a sense of community, build understanding, and motivate people to action. A number of formats may be used including those listed in Table 73.



Printed	Electronic	Visuals	Events	Other
 Brochures Posters Flyers Mail surveys Fact sheets Manuals & other technical resources News releases Newsletters Bumper stickers Promotional items 	 Websites Social media (e.g., Facebook, Twitter) Bulletin boards Watershed wikis Web syndications (podcasts, RSS feeds) Public service announcements (TV, radio) Picture Post* 	 Signage Exhibits Demonstration projects Bulletin boards Presentations Storm drain stenciling 	 Focus groups Field trips Classes Cleanup events Restoration field days Hands on events Public hearings & meetings 	 DuPage River Salt Creek Workgroup Salt Creek Watershed Network Partnerships Cooperative agreements Local ordinances Comprehensive plans

 Table 73. Communication tools for education and outreach campaigns.

4.3.2.5 Selecting Program Activities for Targeted Audiences

Once the targeted audience has been identified and outreach priorities, messages, and delivery formats determined, an outreach strategy should be developed. It should include priority topics, targeted audiences, vehicles to communicate the messages, and potential partners to lead information and education outreach efforts. Several information and education opportunities to support each of this plan's goals are summarized in Table 74.

Targeted Audience	Existing and Potential Opportunities	Potential Partners
Goal: Improve and designated uses of a		
-Volunteers	Conservation@Home and Conservation@Work encourages use of ecofriendly landscapes among landowners. The program recognizes the importance of native plants and their effect on water resources. The Conservation Foundation (TCF) provides a detailed guide to making and maintaining rain gardens and rain barrel installation. They also sell discounted rain barrels year round.	-The Conservation Foundation (TCF)
-Volunteers -Students	Increase citizen knowledge through the Illinois Volunteer Lake Monitoring Program (VLMP). Data used from the program is used to document water quality impacts to local lakes and aid in lake management decision-making.	-Illinois EPA -CMAP
-Volunteers -Students	Through the Illinois River Watch Program, volunteers can become "citizen scientists" and conduct habitat and biological	-The National Great Rivers Research

 Table 74. Existing and potential information and education opportunities by Lower Salt Creek

 Watershed-based Plan goal.



	surveys on streams. The macroinvertebrates collected are used as bio-indicators of water quality.	and Education Center
-Volunteers -Residents -Landowners -Businesses	The Salt Creek Watershed Network's website includes educational resources about watersheds, and how residents, landowners and businesses can protect water systems.	-Salt Creek Watershed Network
-Volunteers -Residents -Landowners -Businesses	The DuPage River Salt Creek Workgroup (DRSCW) is performing in a number of monitoring programs and remediation projects in order to protect the watershed. Some of their projects involve bio-assessment, chlorides, dissolved oxygen, nutrient management, etc.	-DRSCW
-Residents -Landowners -Businesses	The WaterSense Program promotes the need for water efficiency by offering alternatives to use less water with water efficient products.	-US EPA -Northwest Water Planning Alliance
-Volunteers	 The DuPage County River Sweep is an annual self-coordinated stream cleanup and restoration event. The river sweep involves volunteers helping to clean up the rivers and streams by picking up garbage and debris in and along the local waterways and restoring nearby land back to its natural state. 	-TCF -DuPage County
-Residents -Landowners -Businesses	 DuPage County Water Quality Collector Web App is an online citizen reporting tool that allows residents, landowners, and businesses to document various waterway issues in the area. Some of the reported issues include stream blockage, streambank erosion, sediment and water quality issues. The web app tool documents the reported issues and informs the county about the issues. 	-DuPage County Stormwater Management
-Residents -Landowners -Businesses	DuPage County Stormwater Management's website provides a number of educational resources that have been developed to protect the quality of groundwater and conserve water.	-DuPage County Stormwater Management
Goal: Protect, rest animal species d	ore, and expand natural areas and increase native aquatic and terriversity.	restrial plant and
-Residents -Landowners -Businesses	The Forest Preserves of Cook County (FPCC) seeks to protect, restore, and expand natural areas within the County. The FPCC offers a number of education and special events aimed at its mission, and owns or manages numerous natural areas. The FPCC partners with the Chicago Zoological Society to conduct plant and animal species conservation efforts.	-Forest Preserves of Cook County -Chicago Zoological Society (Brookfield Zoo)
-Residents -Landowners -Businesses	The Forest Preserve District of DuPage County (FPDDC) seeks to protect, restore, and expand natural areas within the DuPage County. The FPDDC offers a number of education and special events aimed at its mission, and owns or manages numerous natural areas.	-Forest Preserve District of DuPage County
	ding and attendant streambank and shoreline erosion and infrastrorove and protect water quality.	ructure risk through



-Residents -Landowners -Government Officials -Government Agencies -Government	Meetings, local government websites, school websites, newsletters, email blasts, workshops, demonstration projects, public meetings, streambank and shoreline assessments. Develop a regional floodplain management plan. Potential	-Elected Officials -Park & forest preserve districts -Non-Profit Groups -Landscape Contractors -Homeowner's Associations -FEMA
Officials -Government Agencies	benefits of the plan include: reduction of flood damage costs to communities; improvement of riparian vegetation, wildlife habitat and water quality; retention of natural beauty in the area.	
-Government Officials -Government Agencies	Develop a local stormwater or floodplain management plan. Potential benefits of the plan include: reduction of flood damage costs to communities; improvement of riparian vegetation, wildlife habitat and water quality; retention of natural beauty in the area.	-DuPage County -Cook County -MWRDGC -Municipalities
-Government Officials -Government Agencies	Village newsletters may be used by local governments to tie the educational component of their MS4 program to this watershed plan and its implementation such that collaborative efforts might benefit from a consistent message and efficiencies to be gained from cooperation.	-Elected Officials -Illinois EPA
-Volunteers -Residents -Landowners -Government Officials -Government Agencies -Land Resource Managers -Developers	Targeted mailings, county/municipal websites, home owner's association workshops, handouts at permit facilities, local codes, ordinances	-Elected Officials -DuPage County -Cook County -MWRDGC -CMAP
-	puild, strengthen, and support local partnerships and expertise to implementation.	protect our streams
-Government Officials -Government Agencies -Land Resource Managers -Non-Profit Organizations	CMAP's Local Technical Assistance (LTA) Program provides assistance to local governments, nonprofits, and intergovernmental organizations to address sustainable development.	-CMAP
-Government Officials	Municipal/Technical Training in the form of a variety of workshops that teach BMPs for stormwater management and stream restoration.	-TCF



-Government Agencies		-DuPage County Stormwater Management
-Volunteers -Residents -Students	 SCARCE is a non-profit in DuPage County that focuses on providing hands-on environmental education programs for schools and organizations. SCARCE also hosts several community-wide events focused on public outreach about environmental stewardship and sustainability. SCARCE offers a program that teaches K-12 students about the 'Enviroscape Watershed Model' that identifies point and NPS pollution. 	-School & Community Assistance for Recycling and Composting Education (SCARCE)
-Volunteers -Residents -Students	Environmental and nature related professional development training/workshops that provide educators information about natural resources, as well as supplement materials and instructional methods to incorporate into lessons with students. The trainings/ workshops are meant to promote stewardship of natural resources.	-Environment and Nature Training Institute for Conservation Education (ENTICE) -Illinois Dept. of Natural Resources' (IDNR) Division of Education
-Volunteers -Residents -Students	Zoo Adventure Passport (ZAP!) is a free program offered through the Brookfield Zoo that gives families with young children the opportunity to explore the natural world through hands-on, real-life learning experiences.	-Chicago Zoological Society (Brookfield Zoo) -Chicago Public Library
-Volunteers -Residents -Students	The Mighty Acorns® program incorporates classroom curriculum, hands-on restoration activities and exploration as it seeks to provide children with multiple, meaningful, sustained interactions with the land. Classes adopt a natural area in their community and visit it throughout the school year in order to participate in stewardship activities. Each field trip is preceded by a classroom lesson on related ecological concepts.	-TCF
-Volunteers -Residents -Students	The Kane-DuPage Soil & Water Conservation District (SWCD) provides several outreach programs for K- 12 classrooms, home schools, and boy/girl scout groups. Programs are interdisciplinary, aligned to the state learning standards, and can be designed to meet the needs of classroom curriculum. Possible outreach program topics include, but are not limited to, changing landscapes, land and water conservation, soils, trees, and stewardship.	-Kane-DuPage SWCD
-Volunteers -Residents -Students	The North Cook Soil & Water Conservation District (SWCD) provides youth workshops and stewardship opportunities.	-North Cook SWCD



Volunteers	Water Sentinels is a Sierra Club program that deals with water	-Sierra Club
vounteers	related issues across the country. The program explores the ways in which waterways are impacted by pollution, climate, and development, while also actively working to empower local activists with accurate information and training them in	
Volunteers	 water-quality monitoring techniques and grassroots advocacy. Illinois Water Trailkeepers of the Illinois Paddling Council take on a stewardship responsibility with paddleable waterways in Illinois. The Trailkeepers monitor and maintain several water bodies in the state, including the Des Plaines River and Salt Creek. They perform the needed stewardship tasks specific to each body of water. 	-Illinois Paddling Council
	raise public awareness and increase understanding of the impacts gement decisions on water and habitat quality, and further encou rection practices.	
-Students -Residents -Landowners -Government Officials -Government Agencies	Print, Electronic, Visuals, Events, and other tools (see table below)	-Municipalities -Townships -Library Districts -Park & Forest Preserve Districts -Primary & Secondary Schools -SWCDs -CMAP -TCF -SCARCE
-Residents -Landowners -Businesses	Storm Drain Stenciling is a social marketing technique used to educate and remind the public not to dump waste into storm drains in order to avoid runoff and to help keep our waterways clean.	-TCF -SCARCE -Residents -Homeowners Associations -School Groups -Scouting Groups -Church Groups -Service Organizations
-Students -Residents -Landowners -Government Officials -Government Agencies	<i>Love Blue. Live Green.</i> is a campaign that promotes the DuPage County mission to protect and enhance the quality of streams and rivers within the county. The social media campaign platforms provide updates, newsletters, and educational resources about local waterways, and how residents, landowners and businesses can protect them.	-DuPage County
-Schools -Businesses	The Water Quality Flag program encourages schools, businesses, churches, etc. to participate in activities that	-SCARCE -DuPage County



-Churches -Park Districts -Library Districts -Municipal Organizations -Non-Profit Organizations	promote water quality by providing a water quality flag when they complete two activities. Some of these activities include, but are not limited to, installing storm drain markers, planting rain gardens, and installing rain barrels. The water quality flag is both an incentive and a symbol of commitment to water quality.	
-Schools -Businesses -Churches -Park Districts -Library Districts -Municipal Organizations -Non-Profit Organizations	Picture Posts are wooden markers installed in natural areas that help guide visitors to photograph a location in different orientations at different times. Photos are dated, geotagged, uploaded, and shared to allow for environmental monitoring, as well as to increase public awareness of a site. Picture Posts are accessible to anyone, and are easy to install, use and maintain.	-DuPage County -Cook County -Municipalities -Park & Forest Preserve Districts



4.3.3 Recommendations for Public Information/Education/Outreach

Several recommendations for public information, education, and outreach activities within the Lower Salt Creek planning area are listed below.

- 1. Local conservation-oriented organizations and agencies as well as local governments should promote the Lower Salt Creek Watershed-based Plan and its recommendations in either special or regularly occurring communications with members and residents.
- 2. CMAP should issue a press release about the Lower Salt Creek Watershed-based Plan upon approval by Illinois EPA.
- 3. A social survey should be conducted to help determine barriers to and pathways for greater stakeholder participation. (DuPage County Stormwater Management last conducted such a survey in 2013 and 2014.)
- 4. County, township, and municipal governments should create a dialogue with neighborhood and/or homeowner's associations to raise awareness of stormwater management issues and responsibilities, in collaboration with local conservationoriented organizations, educational providers, and stormwater professionals. Workshops on maintaining stormwater BMPs should be offered for HOAs and other property owners responsible for their maintenance.
- 5. County, township, and municipal governments should promote installation of rain gardens, rain barrels, and other property-level green infrastructure practices by neighborhood and/or homeowner's associations and local businesses, in collaboration with local conservation-oriented organizations, educational providers, and professionals in the field.
- 6. Municipal and other local government staff should incorporate NWPA recommendations and related requests for data sharing and information.
- 7. Local governments and nongovernmental organizations alike should promote:
 - a. use of phosphorus-free lawn fertilizer by homeowners and other private individuals who maintain their lawns (i.e., noncommercial or non-for-hire applicators),
 - b. use of on-demand water softeners by homeowners and other private individuals and businesses,
 - c. a pet waste disposal campaign.
- 8. The Conservation Foundation/DRSCW and partner agencies should continue to offer their "sensible salting workshops" and conduct campaigns to encourage workshop participation and ongoing implementation.



4.4 Funding and Technical Assistance

Plan implementation is largely based on the availability of funding and/or technical assistance for implementation projects and other plan recommendations. Table 75 describes several potential grant funding and technical assistance resources that may be used to assist with plan implementation.

Program	Funding Agency	Funding Amount	Eligibility	Eligible Activities	Website
Clean Water State Revolving Fund (CWSRF) <i>and</i> Drinking Water State Revolving Fund (DWSRF)	USEPA in partner- ship with Illinois EPA (see below)	Loan program	Local gov't, individuals, citizens (septic systems), not- for-profit groups	Green projects, wastewater treatment, NPS, watershed management, restoration and protection of groundwater.	https://www.epa.g ov/cwsrf https://www.epa.g ov/drinkingwaters rf
Water Pollution Control Loan Program (WPCLP)	Illinois EPA	Loan program	Typically local gov't	Wastewater infrastructure improvements and stormwater–related projects that benefit water quality [e.g., green infrastructure, water and energy efficiency improvements, other environmentally innovative activities as directed by federal law (see 33 U.S. code 1274)]	<u>http://www.epa.ill</u> <u>inois.gov/topics/gr</u> <u>ants-loans/state-</u> <u>revolving-</u> <u>fund/index</u>
Public Water Supply Loan Program (PWSLP)	Illinois EPA	Loan program	Typically local gov't	Drinking water infrastructure improvements	
Wetland Program Development Grants	USEPA	n/a	States, tribes, local gov'ts, interstate associations, intertribal consortia	Projects that promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys and studies to protect, manage, and restore wetlands.	<u>https://www.epa.g</u> <u>ov/wetlands/wetla</u> <u>nd-program-</u> <u>development-</u> <u>grants</u>
North American Wetlands Conservation Act – Standard Grants	USFWS	\$100,001- \$1,000,000+ with at least 1:1 matching funds	Tribal, State, or local unit of gov't, non- governmental organization, or individual	Long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats for the benefits of all wetlands- associated migratory birds	https://www.fws.g ov/birds/grants/no rth-american- wetland- conservation- act/standard- grants.php

Table 75. Funding and technical assistance resources.



Program	Funding Agency	Funding Amount	Eligibility	Activities Funded	Website
North American Wetlands Conservation Act – Small Grants	USFWS	Up to \$100,000 with at least 1:1 matching funds	Tribal, State, or local unit of gov't, non- governmental organization, or individual	Long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats for the benefits of all wetlands- associated migratory birds	https://www.fws.g ov/birds/grants/no rth-american- wetland- conservation- act/small- grants.php
Environmental Education Grants	USEPA	Up to 75% of project costs; max. award set each cycle (\$91,000 in 2016)	Local, state or tribal education agency, environmental agency, college or university, non-profit org.	Environmental education projects that promote environmental awareness and stewardship. Projects may design, demonstrate, and/or disseminate environmental education practices, methods, or techniques.	<u>https://www.epa.g</u> <u>ov/education/envi</u> <u>ronmental-</u> <u>education-ee-</u> <u>grants</u>
5 Star Wetland and Urban Waters Restoration Grant Program	Nat'l Fish & Wildlife Fndtn	\$10,000 - \$40,000	Non-profit 501(c) orgs, state gov't agencies, local & municipal gov'ts, Indian tribes, educational institutions	Environmental education and training for students, conservation corps, youth groups, citizen groups, corporations, landowners and government agencies through projects that restore wetlands and streams.	<u>http://www.nfwf.</u> <u>org/fivestar/Pages</u> /home.aspx
Brownfields Assessment Grants	USEPA	Up to \$200,000 or \$350,000 with grant limit waiver. \$1,000,000 if a coalition of three or more eligible applicants apply under the name of one coalition member.	State gov't agencies, local & municipal gov'ts, Indian tribes	The inventory, characterization, and assessment of brownfields sites contaminated by petroleum and hazardous substances, pollutants, or contaminants (including hazardous substances co- mingled with petroleum), as well as conducting planning and community outreach related to brownfield site assessment.	<u>https://www.epa.g</u> <u>ov/brownfields/ty</u> <u>pes-brownfields-</u> <u>grant-funding</u>
Brownfields Revolving Loan Fund Grants	USEPA	Revolving Loan Fund Program	State gov't agencies, local & municipal gov'ts, Indian tribes	Capitalize on a revolving loan fund or to provide subgrants for cleanup activities at brownfield sites contaminated by petroleum and hazardous substances, pollutants, or contaminants (including hazardous substances co- mingled with petroleum)	



Program	Funding Agency	Funding Amount	Eligibility	Activities Funded	Website
Brownfields Cleanup Grants	USEPA	Up to \$200,000 20% cost share per site requirement (max 3 sites)	Non-profit 501(c) orgs, state gov't agencies, local & municipal gov'ts, Indian tribes. Applicant must have sole ownership of brownfield site.	Cleanup activities at brownfield sites contaminated by petroleum and hazardous substances, pollutants, or contaminants (including hazardous substances co- mingled with petroleum)	<u>https://www.epa.g</u> <u>ov/brownfields/ty</u> <u>pes-brownfields-</u> grant-funding
Brownfields Area Wide Planning Grants	USEPA	Not specified. Funding available every other year	State gov't agencies, local & municipal gov'ts, Indian tribes	Development of an area-wide plan for a specific area affected by high priority brownfield site(s) in need of assessment, cleanup, and redevelopment.	
Conservation Stewardship Program (CSP)	USDA - NRCS	Not more than \$200,000	Private & tribal ag lands, grass-land, range-land, pasture-land, non-industrial private forest land	Helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities.	https://www.nrcs. usda.gov/wps/por tal/nrcs/main/nati onal/programs/fin ancial/csp/
Environmental Quality and Incentives Program (EQIP)	USDA - NRCS	Advance payment of up to 50%	Agricultural producers	Planning and implementation of conservation practices.	https://www.nrcs.
Conservation Innovation Grants (CIG)	USDA - NRCS	Up to \$75,000 under state component	non-Federal governmental or nongovern- mental orgs, Native American Tribes, individuals	Projects targeting innovative on-the-ground conservation, including pilot projects and field demonstrations.	<u>usda.gov/wps/por</u> <u>tal/nrcs/main/nati</u> <u>onal/programs/fin</u> <u>ancial/eqip/</u>
Healthy Forests Preserve Program	USDA - NRCS	50%, 75% or 100% of the enrolled land/ cost of cons. practice. Funding based on 10- or 30-year contract	Private landowners	The program offers 10-year restoration agreements and 30- year permanent easements for specific conservation actions.	https://www.nrc s.usda.gov/wps/ portal/nrcs/main /national/progra ms/easements/fo rests/



Program	Funding Agency	Funding Amount	Eligibility	Activities Funded	Website
Emergency Watershed Protection Program (EWP)	USDA - NRCS	Up to 75% of the construction cost of emergency measures	Public and private landowners re presented by a project sponsor (e.g., city county, conservation district, Native American tribe)	Watershed impairments incl. Debris-clogged stream channels; Undermined and unstable streambanks; Jeopardized water control structures and public infrastructures; Wind-borne debris removal; and Damaged upland sites stripped of protective vegetation by fire or drought	https://www.nrcs. usda.gov/wps/por tal/nrcs/main/nati onal/programs/lan dscape/ewpp/
Pre-Disaster Mitigation Grant Program	FEMA	Not specified	States, U.S. territories, tribes, local gov'ts	Implementation of a sustained pre-disaster natural hazard mitigation program	<u>https://www.fema.</u> gov/pre-disaster- mitigation-grant- program
Section 319(h) Nonpoint Source Pollution Control Financial Assistance Program	Illinois EPA	Up to 60% of eligible project costs; minimum 40% local match requirement in cash and/or in- kind services. No set limit on awards.	Any entity that has legal status to accept funds from the state of Illinois, incl. state & local gov'ts, non- profit orgs, citizen & environmental groups, individuals, businesses.	Funds may be used for the development, update, and implementation of watershed- based management plans including the development of information/education programs and for the installation of best management practices.	http://www.epa.ill inois.gov/topics/w ater- quality/watershed : management/non point- sources/grants/ind ex
Illinois Clean Lakes Program	Illinois EPA	Phase 1: \$75,000 Phase 2: \$300,000 When funding appropriated	Owners/man- agers of lakes that have public access.	Two types of grants are awarded: Phase I identifies problems and sources of pollution. Phase II grants support implementation or procedures recommended in the Phase I report to improve water quality.	http://www.epa.ill inois.gov/topics/w ater- quality/monitorin g/inland- lakes/index#il2
Lake Education Assistance Program (LEAP)	Illinois EPA	\$500 When funding available	Schools, colleges, universities, not-for profit organizations	Projects and activities that involve enhance lake and lake watershed education of teachers, students, organizations, or the community	http://www.epa.ill inois.gov/topics/w ater- quality/surface- water/leap/index
Streambank Cleanup and Lakeshore Enhancement (SCALE)	Illinois EPA	\$3 <i>,</i> 500	Any entity eligible to receive funds from the state.	Provides funds to assist groups that have established a recurring stream or lakeshore cleanup.	http://www.epa.ill inois.gov/topics/w ater- quality/surface- water/scale/index



Program	Funding Agency	Funding Amount	Eligibility	Activities Funded	Website
Open Space Lands Acquisition & Development (OSLAD) <i>and</i> federal Land & Water Conservation Fund (LWCF)	Illinois DNR	Up to 50% of approved costs Maximum \$750,000/ acquisition \$400,000 development (OSLAD only) Note: funding not currently appropriated for OSLAD	Local units of gov't	Acquisition and/or development of public outdoor recreation/natural areas and facilities	https://www.dnr.il linois.gov/aeg/pag es/openspacelands aquisitiondevelop ment-grant.aspx
Illinois Schoolyard Habitat Action Grant Program	Illinois DNR	Up to \$1000	Teachers, nature center personnel, and youth group leaders for pre- K through 12 th grade students	Enhancing or establishing and maintaining a schoolyard habitat plot, butterfly garden, rain garden, wetland, nesting platform or watering station; designing/building a bird feeding station; and constructing/installing bat roosting boxes.	https://www.dnr.il linois.gov/educati on/Pages/GrantsS HAG.aspx
Sustainable Agricultural Grant Program	Illinois DOA	Up to \$10,000 for individuals Up to \$20,000 for units of government, non-profits, institutions.	Organizations, governmental units, educational institutions, non-profit groups, individuals	Practices are aimed at maintaining producers' profitability while conserving soil, protecting water resources and controlling pests through means that are not harmful to natural systems, farmers or consumers.	https://www2.illin ois.gov/sites/agr/R esources/Conserva tion/Pages/default. aspx#h3
Stream Bank Stabilization & Restoration Program	Illinois DOA; Kane- DuPage SWCD	When funding available. Cost share required.	Proposals must be sponsored by local SWCD	Streambank stabilization using vegetative or other bio- engineering techniques	http://www.kaned upageswcd.org/co nservation.htm#SS <u>RP</u>
Local Technical Assistance (LTA) Program	СМАР	Graduated local contribution requirement	Local gov'ts, nonprofits, intergovern- mental organizations	Technical assistance is provided to address local issues including transportation, landuse, housing, natural environment, economic growth and community development.	<u>http://www.cmap.</u> <u>illinois.gov/progra</u> <u>ms/LTA</u>
Water Quality Improvement Program	DuPage Co.	Up to 25% reimburse- ment of project aspects with a WQ benefit	All DuPage Co. entities	Projects providing a regional water quality benefit, e.g., streambank stabilization, habitat improvements, riparian buffer rehabilitation, etc.	https://www.dupa geco.org/EDP/Stor mwater Manage ment/Water Quali ty/1312/



Program	Funding Agency	Funding Amount	Eligibility	Activities Funded	Website
Green Infrastructure Assistance Program	MWRD	Not specifiedLocal governmental entities withinGreen infrastructure installations on public property designed to prevent stormwater from entering the sewer system by using natural landscaping to manage water and provide environmental and community benefits.		<u>https://www.mwr</u> d.org/irj/portal/an onymous/stormw	
Stormwater Management Phase II (localized) Flood Control Program	MWRD	Not specified Local cost share requirement	Local governmental entities within MWRD's service boundary	Installation of localized detention, the upsizing of critical storm sewers and/or culverts, establishing drainage ways, or the installation of any combination of green and grey infrastructure.	<u>ateroverview</u>
American Water Environmental Grant Program	Ameri- can Water	Up to \$10,000	Municipalities, non-profits, schools	Source water and watershed protection projects (e.g., watershed cleanup, habitat restoration, stream buffer restoration, wellhead protection, hazardous waste collection, surface or groundwater protection education)	https://amwater.co m/corp/customers -and- communities/envi ronmental-grant- program
Green Region Program	ComEd	Up to \$10,000 50% match requirement	Public agencies w/in ComEd's service territory	Open space planning, acquisition, or improvements for local parks, natural areas, and recreation resources.	<u>https://openlands.</u> org/planning/gree <u>nregion/</u>
Great Urban Parks Campaign - Green Stormwater Infrastructure Community Outreach and Education Grant	Nat'l Recrea- tion & Park Assoc.	\$10,000	Local, municipal, or regional agency; Tribal community; or affiliated 501(c)(3) nonprofit organization	Innovative community engagement strategies that effectively empower the community to influence the design of a green stormwater infrastructure project that best suits their needs, while also benefiting the local environment.	https://www.nrpa. org/our- work/partnerships /initiatives/water- conservation/great -urban-parks- campaign-pilot- projects/



5. Monitoring Success

Although there is considerable merit in producing a watershed-based plan, actual protection and improvement in water quality in the Lower Salt Creek Watershed planning area will be a result of implementing the plan's various project, program, planning, policy, and I/E outreach recommendations. Improving water quality will happen over time and with considerable effort by all with a stake in watershed health including residents, local governments, agencies, organizations, and the business community.

5.1 Implementation Schedule

Task	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	(Year 11)
Conduct outreach to elected officials & general public about the Lower Salt Creek Watershed-based Plan, including funding & tech assist opportunities	x		x		x		x		x		
Identify a series of plan recommendations to implement	x	х		x	x		х	х			
Identify available grant funding and tech assistance programs	x	x	x	x	x	x	x	x	x	x	
Develop and submit grant and tech assistance applications	x	x	x	x	x	x	x	x	x	x	
Implement on-the-ground, policy & planning, and education and outreach projects and programs		х	x	x	x	x	х	х	х	x	
Keep track and report progress to DRSCW	x	x	x	x	x	x	x	x	x	x	
Communicate success stories	X	Х	Х	Х	Х	Х	Х	Х	Х	x	
Evaluate accomplishments		Х		Х		Х		Х		x	
Update the watershed-based plan										х	x

Table 76. General 10-year plan implementation schedule.



5.1.1 Interim Measureable Milestones

Plan recommendations will require local commitments, resources, and collaboration for implementation success. One requirement of a watershed-based plan is to establish interim measurable milestones for determining whether nonpoint source pollution management measures and other actions are being implemented. Table 77 identifies such milestones and ties them to goals that stakeholders established during the planning process. Stakeholders will evaluate progress towards measurable milestones on an annual basis such that it will become clear where improvements and/or changes to an approach or the plan itself are needed. It is important, therefore, for a clear sense of progress to be documented. DCSM and DRSCW will collaborate to identify processes currently in place to document BMPs implemented and develop a repository (e.g., database) for the data.

Goal	Indicator	Two-year milestone	Five-year milestone	Ten-year milestone
	Acres of bioretention / bioinfiltration / rain gardens	10	30	70
	Acres of bioswales	50	100	250
	Acres of permeable or porous pavements / pavers	50	120	260
Improve and	Acres of infiltration trenches	20	60	160
protect the ecological	Acres of new riparian buffer / urban filter strips	20	40	100
integrity of surface water	Acres of new wetland		10	20
resources to	Lin. ft. of shoreline stabilization	2,000	8,000	17,500
attain or maintain	Lin. ft. streambank/stream channel stabilization	20,000	50,000	100,000
designated uses of aquatic life support, fish	No. of chloride applicators applying at an average rate of less than 300 lbs per lane mile	15	20	30
consumption, primary	No. of dams removed / modified	0	1-2	4
contact, and	No. of detention basin retrofits	10	30	70
aesthetic quality	No. of municipalities and institutions that discontinue use of coal-tar sealants for their operations	tutions that discontinue use 10 15 al-tar sealants for their	15	25
	No. of oil & grit separators	100	400	1040

Table 77. Interim measureable milestones (cumulative).



Goal	Indicator	Two-year milestone	Five-year milestone	Ten-year milestone
Protect, restore, and expand	Acres ecological habitat restoration	200	400	1000
natural areas and open space,	Acres of wetland restoration	10	40	80
and increase native aquatic	No. of restoration workday volunteers	100	200	500
and terrestrial plant and				
animal species diversity				
Reduce	Acres of green roof	40	100	250
flooding and attendant bank	Acres of impervious surface reduction	50	140	300
erosion and infrastructure	Acres of floodplain reconnection	5	10	30
risk through	No. of new flood control facilities		1	3
initiatives to improve and	No. of flood prone property buy- outs	1	4	10
protect water quality				
Continue to build,	No. of presentations made to elected officials	6	15	30
strengthen, and support local	No. of presentations made to stakeholder groups	6	15	30
partnerships and expertise to protect our	No. of public events where water quality outreach & education provided	5	10	30
streams, lakes, and wetlands	No. of organizations involved in plan implementation	20	30	40
via plan implementation				



Goal	Indicator	Two-year milestone	Five-year milestone	Ten-year milestone
	No. of municipalities whose comprehensive plans/updates support water quality protection in new and retrofit design practices			33
	No. of municipalities whose ordinance updates improve water quality protections			33
	No. of workshops made available to road salt applicators	4	10	20
Continue to raise public awareness and increase	No. of public road maintenance departments participating in "sensible-salting" training / retraining workshops	40	40 40	40
understanding of the impacts of land use and	No. of private contractors participating in "sensible-salting" training / retraining workshops	30	50	80
land/water management decisions on	No. of institutions participating in "sensible-salting" training / retraining workshops	10	20	20
water and habitat quality, and further encourage	No. of new Conservation@Home,	20	50	
implementation of watershed	No. of Adopt a Stream Groups		10	20
protection practices	No. of stream cleanup events	10	30	50
-	No. of DuPage River Sweep participants	600	800	1000
	No. of stream sites monitored by RiverWatch volunteers		2	4
	No. of VLMP lakes	2	4	6
	No. of WQ flags awarded (by DuPage Co.) to schools and community organizations	4	10	20



5.2 Criteria for Determining Progress

Gauging progress and success with the plan depends largely on how many of the plan recommendations are implemented. Progress made with implementing BMP recommendations should eventually translate to improved water quality and subsequent attainment of designated uses and/or water quality standards.

Monitoring pollutant load reductions and biological index scores will be the primary criterion by which progress can be judged. Table 78 identifies criteria of determining progress within five and ten-year timeframes to reflect the fact that it will take time to see improvements manifest in response to plan implementation.

Another important criterion for determining progress will be delisting of a waterbody due to use attainment as documented in the biennial integrated water quality reports. Thus, improvements in water quality should result in greater use attainment and/or delisting [Section 303(d)] in the 2028 Integrated Report.

Criteria	Current Load, Score, or Rating	Target within 5 years	Target within 10 years	
Watershed-wide				
Nitrogen load reduction	498,357 lb/yr	5% load reduction = 24,918 lbs/yr	15%* load reduction = 74,754 lbs/yr	
Phosphorus load reduction	81,111 lbs/yr	10% load reduction = 8,111 lbs/yr	25%* load reduction = 20,278 lbs/yr	
BOD load reduction	1,785,867 lbs/yr	5% load reduction = 89,293 lbs/yr	15% load reduction = 267,880 lbs/yr	
Sediment load reduction	15,110 t/yr	10% load reduction = 1,511 t/yr	25% load reduction = 3,778 t/yr	
Chloride load reduction (road deicing practices)	32,600 t/yr	20% load reduction = 6,520 t/yr	30% load reduction = 9,780 t/yr	
Waterbody-specific				
Salt Creek from RM 23.5-25 (I-290 to Elizabeth I	Orive in the Preserve at (Oak Meadows)	
fIBI score	19	Maintain	>25	
mIBI score	21	>28	>35	
QHEI score	46.5	>65	>70	
Nitrogen load reduction		1,521 lbs/yr	Maintain	
Phosphorus load reduction		760 t/yr	Maintain	
Sediment load reduction		760 t/yr	Maintain	

Table 78. Criteria for determining progress in load reductions and attaining or maintaining water
quality standards or criteria.



Salt Creek from RM 10.5-12 (York Road and Old Oakbrook Dam)							
fIBI score	16	Maintain	>27				
mIBI score	16.14	Maintain	>42				
QHEI score	42.5	Maintain	>70				
Nitrogen load reduction			1,521 lbs/yr				
Phosphorus load reduction			760 t/yr				
Sediment load reduction			760 t/yr				
Lake Charles (RGR)							
Annual avg. total phosphorus concentration	0.130 mg/L		≤0.050 mg/L				
Swan Lake (WGZY)							
Annual avg. total phosphorus concentration	0.759 mg/L		≤0.050 mg/L				

*percent reduction matches Illinois Nutrient Reduction Strategy year 2025 goal

5.3 Monitoring to Evaluate Effectiveness

A robust water quality monitoring regime is required to evaluate the effectiveness of BMP implementation. The STEPL model used to determine baseline or background pollutant loads and load reduction estimates associated with BMP implementation is not calibrated nor validated from water quality and/or land-use pollutant runoff data in the planning area. The models used data from vbest available research conducted around the country over time (e.g., event mean concentration, pollutant removal efficiencies, etc.). It will be important to keep track of BMPs implemented in the various subwatershed study units to help explain any changes that occur or treads that emerge in water quality parameters or aquatic life indices.

Water Quality Monitoring

Monitoring of water quality and aquatic life response will largely depend on the following agencies, organizations, and programs:

DRSCW - Annual water quality monitoring; cyclic macroinvertebrate, fish, and habitat assessments (last bioassessment in 2016, next in 2021); and special studies (e.g., sediment oxygen demand). (See Table 39 for list of parameters; Figure 41 for monitoring locations.)

DuPage County - The County is responsible for implementing a monitoring and assessment program as part of its NPDES permit. DuPage County supports and contributes to DRSCW's ambient monitoring of waterways.

Illinois EPA and Illinois DNR - Every five years, Illinois EPA and Illinois DNR collaborate on a Des Plaines River Basin survey collecting stream water and sediment quality,



macroinvertebrate, fish, and habitat data (last survey in 2017, next in 2022). (See Figure 40 for monitoring station locations.) The data is used by Illinois EPA for its biannual assessment of the state's waters and determination of impaired waterbodies as required under the Clean Water Act.

Volunteer Programs:

- <u>Illinois Volunteer Lake Monitoring Program (VLMP)</u>: Volunteer lake monitors conduct Secchi transparency readings annually from May through October, and may collect water chemistry and dissolved oxygen and temperature profile data as equipment and funds allow. As of 2018, two lakes within the Lower Salt Creek watershed participate in the VLMP: Lake Charles in DuPage County and Swan Lake in Cook County. Additional lakes are encouraged to join the VLMP. CMAP serves as the regional coordinator for this longstanding (since 1981) Illinois EPA program.
- <u>Sierra Club Water Sentinels</u>: The Sierra Club chapter in DuPage County, the River Prairie Group, has monitored water quality in Salt Creek as part of Sierra Club's national Water Sentinels project since 2000. Volunteers record water temperature and collect water chemistry samples regularly at two locations in Salt Creek: at the Prairie Path Bridge and Eldridge Park, both in Elmhurst. The group is encouraged to collaborate with DRSCW to identify other locations where additional data could be useful.
- <u>Illinois RiverWatch Network</u>: Volunteers adopt a stream site in their community and conduct habitat and biological surveys, including the collection and identification of macroinvertebrates. The program is coordinated by the National Great Rivers Research and Education Center. Interested volunteers are encouraged to coordinate with the DRSCW to identify locations where macroinvertebrate data would be especially informative (such as tributaries to Salt Creek).

Social Indicator Monitoring

DuPage County Stormwater Management conducted a water quality survey in 2013 and 2014 to assess the public's awareness of stormwater runoff and its impacts upon local streams and rivers. After developing outreach materials and 3-plus years of "getting the word out," it is recommended that DCSM conduct a similar survey to measure if there has been any improvement in public knowledge and changes in behavior regarding water resource protections.



List of Acronyms

ADID: Advanced Identification [of wetlands] ALMP: Ambient Lake Monitoring Program **BMP: Best Management Practice BOD: Biological Oxygen Demand** CL: Chloride CMAP: Chicago Metropolitan Agency for Planning CNT: Center for Neighborhood Technology **CWP: Center for Watershed Protection** CWS: Community Water System CZS: Chicago Zoological Society DCSM: DuPage County Stormwater Management **DNR: Deparment of Natural Resources** DRSCW: DuPage River Salt Creek Workgroup EPA: Environmental Protection Agency FEMA: Federal Emergency Management Agency fIBI: fish Index of Biotic Integrity FIRMs: Flood Insurance Rate Maps **FPD: Forest Preserve District GIV:** Green Infrastructure Vision HEL: Highly erodible land HOA: Homeowner's Association HSGs: Hydrologic Soil Groups IEMA: Illinois Emergency Management Agency IFDA: Illinois Forestry Development Act IGPA: Illinois Groundwater Protection Act INAI: Illinois Natural Area Inventory INPC: Illinois Nature Preserves Commission ISGS: Illinois State Geological Survey INHS: Illinois State Natural History Survey ISWS: Illinois State Water Survey IWAP: Illinois Wildlife Action Plan LTA: Local Technical Assistance MBI: Macroinvertebrate Biotic Index mIBI: macroinvertebrate Index of Biotic Integrity MS4: Municipal Separate Storm Sewer System MWRD: Metropolitan Water Reclamation

District of Greater Chicago

N: Nitrogen NIPC: Northeastern Illnois Planning Commission NLCD: National Land Cover Database NOI: Notice of Intent NPDES: National Pollutant Discharge Elimination System NRCS: Natural Resources Conservation Service NVSS: Nonvolatile Suspended Solids NWPA: Northwest Water Planning Alliance P: Phosphorus PAHs: Polycyclic Aromatic Hydrocarbons PCBs: Polychlorinated Biphenyls QHEI: Qualitative Habitat Evaluation Index SARA: Sensitive Aquifer Recharge Area SCWN: Salt Creek Watershed Network SMO: Stormwater Management Ordinance SS: Site-specific SSURGO: Soil Survey Geographic STEPL: Spreadsheet Tool to Estimate Pollutant Loads SWCD: Soil & Water Conservation District TKN: Total Kjeldahl Nitrogen **TOD: Transit Oriented Development TP: Total Phosphorus** TSI: Trophic State Index TSS: Total Suspended Solids UDO: Unified Development Ordinance USDA: U.S. Department of Agriculture USGS: U.S. Geological Survey UST: Underground Storage Tank VLMP: Volunteer Lake Monitoring Program VSS: Volatile Suspended Solids WW: Watershed-wide WWTP: Waste Water Treatment Plant



Appendix A – Lower Salt Creek Watershed Planning Meeting Participants

Name		Organization
Jedd	Anderson	Christopher B. Burke Engineering, Ltd. / rep. City of Northlake
Craig	Billington	Forest Preserves of Cook County
John	Brechin	Village of Addison
Mike	Bretz	Village of Brookfield
Tony	Budzikowski	Village of Oak Brook
Joe	Caracci	Village of Bensenville
Carl	Celestino	Village of Westchester
Anthony	Charlton	DuPage County Stormwater Management
Simon	Christensen	DuPage County Stormwater Management
Rob	Covey	Village of Schaumburg
Dan	Deeter	Village of Hinsdale
Deanna	Doohaluk	The Conservation Foundation / DuPage River Salt Creek Workgroup
Emily	Egan	Village of Brookfield
Rudy	Espedido	Village of Addison
Mary Beth	Falsey	DuPage County Stormwater Management
Rick	Federighi	Village of Addison
Darlene	Garay	Oakwood Homeowners Association - Lake Management Committee
Ryan	Gillingham	Village of La Grange
Allen	Goodcase	Ehlert Park Natural Area
Dave	Gorman	Village of Lombard
Sarah	Hunn	DuPage County Stormwater Management
Ron	Hursh	Salt Creek Watershed Network
Bridget	Jackubiak	Brookfield Conservation Commission
Elaine	Jans	Brookfield Conservation Commission
Eric	Johnson	City of Elmhurst
Kit	Ketchmark	Village of Brookfield
Howard	Killian	City of Elmhurst
Dave	Koldoff	James J. Benes & Associates, Inc.
Steve	Krych	City of Wood Dale Stormwater Mngmnt Cmsn; Salt Creek Watershed Network
Kendra	Kuehlem	Village of Brookfield
Drew	Kustusch	Engineering Resource Associates, Inc.
Patrick	Lach	Hey and Associates, Inc.
Robert	Lewis	Village of Westchester
Jenny	Loewenstein	Engineering Resource Associates, Inc.
Kai	Lui	Village of Addison
Jeremie	Lukowicz	Village of Villa Park



Name		Organization
Fred	Maier	Village of Itasca
Amy	McKenna	Robinson Engineering, Ltd. / rep. Itasca, Wood Dale, Roselle
Karen Ann	Miller	Brookfield Plan Commission
Mary	Mitros	DuPage County Stormwater Management
Noriel	Noriega	Village of Westmont
Jessica	Ortega	Forest Preserve District of DuPage County
Eric	Otto	Forest Preserves of Cook County
Erin	Pande	Engineering Resource Associates, Inc.
Kevin	Piraino	DuPage County Stormwater Management
Ron	Raphael	Elk Grove Village
Chris	Reynolds	Village of Addison
Jerry	Robinson	Christopher B. Burke Engineering, Ltd.
Lynn	Rotunno	Salt Creek Watershed Network
Ken	Rubach	City of Wood Dale
Sarah	Runger	Hey and Associates, Inc.
Michelle	Ryan	Village of Brookfield
Scott	Saacke	Salt Creek Watershed Network
Dan	Schoenberg	James J. Benes & Associates, Inc.
Laura	Schweizer	DuPage County Stormwater Management
Jon	Stelle	City of Elmhurst
Dennis	Streicher	The Conservation Foundation / DuPage River Salt Creek Workgroup
Mark	Thoman	Downers Grove Township
Bill	Thoms	Salt Creek Watershed Network
Cori	Tiberi	City of Elmhurst
Rick	Valent	Village of Oak Brook
Vasilli	Voskresenski	Village of Villa Park
Seema	Wadia	Metro Strategies, Inc.
Robert	Wagner	Village of Villa Park
Bryan	Wagner	Illinois Tollway
Jeff	Wickenkamp	Hey and Associates, Inc.
Philip	Wille	Salt Creek Watershed Network
Matthew	York	City of Wood Dale
Stan	Zarnowiecki	Salt Creek Watershed Network
Steve	Zehner	Robinson Engineering, Ltd.
Dan	Zinnen	Forest Preserve District of DuPage County
Andy	Zontos	Village of Brookfield



Appendix B – Detention Basin Assessment Data and Retrofit Opportunities



Table B-1. Lower Salt Creek Watershed planning area detention basin inventory and assessment information including retrofit opportunities and observed maintenance needs.

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
AD-01	Addison	6	Wet	Good			41.952355	-88.044543
AD-02	Addison	1	Wet	Poor			41.955723	-88.024554
AD-03	Addison	1	Wet	Poor			41.954107	-88.01879
AD-04	Addison	1	Wet	Poor			41.952544	-88.018975
AD-05	Addison	7	Dry - Naturalized	Fair	make side slopes native plants		41.950554	-88.030121
AD-06	Addison	1	Dry - Turf	Poor	remove channel, add native plants		41.949936	-88.027965
AD-07	Addison	7	Wet	Poor			41.948202	-88.032499
AD-08	Addison	7	Wet	Good			41.948763	-88.030782
AD-09	Addison	1	Wet	Poor	add native plants		41.948892	-88.023889
AD-10	Addison	1	Wet	Good			41.947682	-87.983123
AD-11	Addison	1	Constructed Wetland	Good			41.946537	-87.982199
AD-12	Addison	7	Dry - Turf	Poor			41.943761	-88.038401
AD-13	Addison	7	Wet w/ Extended Dry	Good		Broken off pipe	41.945012	-88.036312
AD-14	Addison	7	Wet	Good		invasive plants	41.945974	-88.033317
AD-15	Addison	7	Wet	Poor			41.945089	-88.026247
AD-16	Addison	7	Unassessed	Unassessed			41.94551	-88.021648
AD-17	Addison	7	Unassessed	Unassessed			41.943953	-88.018846
AD-18	Addison	7	Unassessed	Unassessed			41.942706	-88.017962
AD-19	Addison	7	Dry - Turf	Poor	add native plants		41.945114	-88.015857
AD-20	Addison	7	Dry - Turf	Poor	add native plants		41.944579	-88.014473



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
AD-21	Addison	7	Wet	Poor			41.944839	-88.012968
AD-22	Addison	7	Wet	Poor		invasive plants	41.945712	-88.009251
AD-23	Addison	7	Wet	Poor		invasive plants	41.944392	-88.009184
AD-24	Addison	7	Wet	Fair			41.940743	-87.988061
AD-25	Addison	7	Dry - Turf	Poor			41.940976	-88.038401
AD-26	Addison	7	Dry - Turf	Poor			41.939308	-88.032871
AD-27	Addison	7	Dry - Turf	Poor			41.938017	-88.032868
AD-28	Addison	7	Dry - Turf	Poor	Add native plants		41.940166	-88.029168
AD-29	Addison	7	Wet	Good			41.93844	-88.019339
AD-30	Addison	7	Dry - Turf	Poor		unlock fence	41.936128	-88.019609
AD-31	Addison	7	Wet	Poor			41.940726	-88.009818
AD-32	Addison	7	Wet w/ Extended Dry	Poor		sediment forebay	41.938806	-88.007023
AD-33	Addison	7	Wet	Poor			41.937428	-88.005893
AD-34	Addison	7	Wet	Poor		sediment forebay	41.936925	-88.006073
AD-35	Addison	7	Wet	Fair			41.930521	-88.032798
AD-36	Addison	7	Wet	Good			41.932441	-88.023395
AD-37	Addison	7	Dry - Turf	Fair			41.929958	-88.019778
AD-38	Addison	7	Wet	Poor		Pipe broken off	41.93123	-88.01466
AD-39	Addison	7	Dry - Turf	Poor	native plants		41.930443	-88.013162
AD-40	Addison	7	Unassessed	Unassessed			41.934122	-87.997583
AD-41	Addison	7	Dry - Turf	Poor	plant natives, install forebay		41.932298	-87.990499

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
AD-42	Addison	2	Wet	Poor			41.93643	-87.97421
AD-43	Addison	2	Wet	Poor			41.936072	-87.971323
AD-44	Addison	7	Dry - Turf	Poor			41.928276	-88.017777
AD-45	Addison	7	Wet	Poor			41.928988	-88.013931
AD-46	Addison	7	Wet	Poor			41.9301	-88.005749
AD-47	Addison	7	Dry - Turf	Poor	add native vegetation		41.927649	-88.006189
AD-48	Addison	2	Wet	Good			41.926014	-87.990471
AD-49	Addison	2	Wet	Poor			41.928346	-87.9817
AD-50	Addison	2	Wet	Poor			41.928606	-87.979893
AD-51	Addison	2	Wet	Poor			41.928212	-87.973479
AD-52	Addison	2	Dry - Naturalized	Fair		Don't mow basin edge	41.926394	-87.972323
AD-53	Addison	7	Dry - Turf	Poor	add native vegetation		41.925544	-88.030348
AD-54	Addison	7	Wet	Poor	add vegetation to slopes		41.926342	-88.023468
AD-55	Addison	7	Wet w/ Extended Dry	Poor	add wetland vegetation		41.925065	-88.022138
AD-56	Addison	7	Wet w/ Extended Dry	Fair	add native plants		41.923923	-88.020936
AD-57	Addison	7	Wet w/ Extended Dry	Fair			41.921536	-88.021044
AD-58	Addison	7	Dry - Turf	Poor	add native vegetation		41.919751	-88.03874
AD-59	Addison	7	Dry - Turf	Poor	native vegetation		41.920161	-88.03196
AD-60	Addison	7	Dry - Turf	Poor	Native vegetation		41.919827	-88.031938
AD-61	Addison	2	Wet	Good			41.921493	-87.99853
AD-62	Addison	7	Unassessed	Unassessed			41.91783	-88.028115



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
AD-63	Addison	7	Unassessed	Unassessed			41.917139	-88.028055
AD-64	Addison	7	Dry - Naturalized	Good			41.917223	-88.017665
AD-65	Addison	7	Wet w/ Extended Dry	Good			41.917269	-88.014836
AD-66	Addison	7	Wet	Good			41.91667	-88.013303
AD-67	Addison	2	Dry - Naturalized	Fair			41.919554	-87.994608
AD-68	Addison	2	Dry - Turf	Poor	native vegetation		41.917167	-87.993321
AD-69	Addison	2	Dry - Turf	Poor	native vegetation		41.916751	-87.993299
AD-70	Addison	2	Dry - Naturalized	Good	remove invasive species		41.918937	-87.989284
AD-71	Addison	2	Dry - Turf	Poor	add native plants		41.91826	-87.986594
AD-72	Addison	2	Dry - Turf	Poor	add native plants		41.916334	-87.978287
AD-73	Addison	2	Wet w/ Extended Dry	Good			41.913892	-87.975912
AD-74	Addison	2	Wet	Fair			41.913084	-87.967138
AD-75	Addison	7	Wet	Poor			41.910887	-88.003948
AD-76	Addison	7	Dry - Turf	Poor	native vegetation plantings		41.908488	-88.00005
AD-77	Addison	2	Dry - Turf	Poor	native vegetation plantings		41.908871	-87.992918
AD-78	Addison	2	Dry - Turf	Poor	native plants		41.906777	-87.999009
AD-79	Addison	2	Dry - Turf	Poor	native plants		41.906615	-87.998682
AD-80	Addison	2	Wet	Good			41.907019	-87.994266
BD-01	Bloomingdale	6	Wet	Poor		plants recently planted, massive exposed soils	41.965197	-88.074925
BD-02	Bloomingdale	6	Wet	Fair			41.966119	-88.072861
BD-03	Bloomingdale	6	Wet	Good			41.964144	-88.077619



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
BD-04	Bloomingdale	6	Wet	Fair			41.963042	-88.081463
BD-05	Bloomingdale	6	Dry - Turf	Good			41.961343	-88.070889
BD-06	Bloomingdale	6	Wet	Fair			41.96093	-88.064955
BD-07	Bloomingdale	6	Wet	Poor			41.962676	-88.089119
BD-08	Bloomingdale	6	Dry - Turf	Poor			41.962195	-88.0957
BD-09	Bloomingdale	6	Dry - Naturalized	Fair			41.961238	-88.098411
BD-10	Bloomingdale	6	Constructed Wetland	Poor			41.960492	-88.101085
BD-11	Bloomingdale	6	Wet	Poor	add vegetation	Under construction	41.959619	-88.100959
BD-12	Bloomingdale	6	Wet	Poor	add native plants buffer		41.959789	-88.094848
BD-13	Bloomingdale	6	Wet	Poor			41.959715	-88.092803
BD-14	Bloomingdale	6	Wet	Poor			41.959882	-88.087729
BD-15	Bloomingdale	6	Dry - Turf	Fair	additional native plants		41.959675	-88.086619
BD-16	Bloomingdale	6	Dry - Turf	Poor			41.959695	-88.087971
BD-17	Bloomingdale	6	Dry - Turf	Poor			41.959367	-88.088133
BD-18	Bloomingdale	6	Dry - Turf	Poor			41.958979	-88.083386
BD-19	Bloomingdale	6	Dry - Turf	Poor			41.958378	-88.082597
BD-20	Bloomingdale	6	Dry - Turf	Poor			41.958223	-88.082574
BD-21	Bloomingdale	6	Constructed Wetland	Poor			41.95946	-88.079015
BD-22	Bloomingdale	6	Dry - Turf	Poor			41.958011	-88.076489
BD-23	Bloomingdale	6	Dry - Turf	Poor			41.957959	-88.075738
BD-24	Bloomingdale	6	Dry - Turf	Poor			41.958315	-88.071473



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
BD-25	Bloomingdale	6	Dry - Turf	Poor			41.959318	-88.06658
BD-26	Bloomingdale	6	Dry - Turf	Good			41.958593	-88.062345
BD-27	Bloomingdale	6	Wet	Good			41.958668	-88.057404
BD-28	Bloomingdale	6	Dry - Naturalized	Good			41.95711	-88.055278
BD-29	Bloomingdale	6	Wet	Good		add aeration	41.957111	-88.054288
BD-30	Bloomingdale	6	Wet	Good			41.957589	-88.0514
BD-31	Bloomingdale	6	Wet	Fair		Add aeration	41.956599	-88.050491
BD-32	Bloomingdale	6	Wet	Good			41.956179	-88.101228
BD-33	Bloomingdale	6	Wet	Good		removal of invasive plants	41.958291	-88.098276
BD-34	Bloomingdale	6	Wet	Poor	wetland plants		41.957467	-88.097066
BD-35	Bloomingdale	6	Dry - Turf	Poor		basin bottom is rip rap	41.959339	-88.091788
BD-36	Bloomingdale	6	Dry - Turf	Poor			41.958272	-88.090575
BD-37	Bloomingdale	6	Dry - Turf	Poor			41.958194	-88.089371
BD-38	Bloomingdale	6	Wet	Poor		add native plants to buffer	41.957862	-88.090387
BD-39	Bloomingdale	6	Dry - Turf	Poor			41.957817	-88.08977
BD-40	Bloomingdale	6	Dry - Naturalized	Good			41.957615	-88.088237
BD-41	Bloomingdale	6	Dry - Turf	Poor			41.956832	-88.084432
BD-42	Bloomingdale	6	Wet	Poor	natives		41.957173	-88.074489
BD-43	Bloomingdale	6	Dry - Turf	Poor			41.956646	-88.071052
BD-44	Bloomingdale	6	Wet	Poor			41.956005	-88.09554
BD-45	Bloomingdale	6	Wet	Poor			41.955175	-88.095949



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
BD-46	Bloomingdale	6	Dry - Turf	Poor		basin bottom is mainly rip rap	41.953969	-88.09349
BD-47	Bloomingdale	6	Dry - Turf	Poor			41.952029	-88.065344
BD-48	Bloomingdale	6	Wet	Poor			41.952879	-88.058723
BD-49	Bloomingdale	6	Wet	Fair			41.950291	-88.054978
BD-50	Bloomingdale	6	Wet	Fair			41.954935	-88.056504
BD-51	Bloomingdale	6	Constructed Wetland	Good			41.954393	-88.053733
BD-52	Bloomingdale	6	Wet	Fair	aerator or Wetland plants		41.953186	-88.050993
BD-53	Bloomingdale	6	Constructed Wetland	Good			41.952596	-88.050823
BD-54	Bloomingdale	6	Wet	Poor	add native plant buffer		41.952982	-88.104853
BD-55	Bloomingdale	6	Wet	Poor			41.95294	-88.101315
BD-56	Bloomingdale	6	Wet	Poor			41.953196	-88.098758
BD-57	Bloomingdale	6	Wet	Poor	native plant buffer		41.953036	-88.092998
BD-58	Bloomingdale	6	Dry - Turf	Poor			41.953209	-88.091133
BD-59	Bloomingdale	6	Wet	Poor	native plant buffer		41.951656	-88.101177
BD-60	Bloomingdale	6	Wet	Poor	convert to wetland		41.952026	-88.095115
BD-61	Bloomingdale	6	Wet	Poor			41.95089	-88.101645
BD-62	Bloomingdale	6	Wet	Fair			41.949842	-88.100908
BD-63	Bloomingdale	6	Wet	Poor		blocked by barbed wire fence	41.946586	-88.103823
BD-64	Bloomingdale	6	Wet	Poor			41.94727	-88.099119
BD-65	Bloomingdale	6	Wet	Fair			41.948063	-88.097791

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
BF-01	Brookfield	4	Dry - Naturalized	Good	Extend buffer on W side 5 ft, convert parking lot to permeable pavements, convert turf swale to native veg or buffalo grass	Control woody spp	41.81245	-87.845893
BF-02	Brookfield	4	Constructed Wetland	Good	Extend buffer 5 ft, at least on N & NW sides; replace interpretive sign	Mng inv veg	41.810686	-87.847491
BF-03	Brookfield	4	Dry - Turf	Poor	Convert to native grasses (buffalo grass?), install rain gardens at both downspout outfalls		41.812625	-87.846494
BK-01	Berkeley	13	Unassessed	Unassessed			41.897493	-87.915889
BK-02	Berkeley	13	Unassessed	Unassessed			41.897186	-87.905842
BK-03	Berkeley	13	Unassessed	Unassessed			41.896823	-87.904212
BK-04	Berkeley	13	Unassessed	Unassessed			41.89451	-87.919532
BK-05	Berkeley	13	Unassessed	Unassessed			41.892173	-87.919438
BK-06	Berkeley	13	Unassessed	Unassessed			41.892034	-87.899498
BK-07	Berkeley	13	Unassessed	Unassessed			41.887893	-87.919265
BK-08	Berkeley	4	Unassessed	Unassessed			41.877808	-87.917628
BN-01	Bensenville	12	Unassessed	Unassessed			41.950087	-87.957794
BN-02	Bensenville	12	Unassessed	Unassessed			41.951515	-87.955832
BN-03	Bensenville	12	Unassessed	Unassessed			41.951731	-87.953835
BN-04	Bensenville	12	Unassessed	Unassessed			41.948968	-87.951466
BN-05	Bensenville	12	Unassessed	Unassessed			41.94885	-87.94053
BN-06	Bensenville	12	Unassessed	Unassessed			41.949664	-87.940021
BN-07	Bensenville	12	Unassessed	Unassessed			41.950594	-87.935659



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
BN-08	Bensenville	12	Unassessed	Unassessed			41.948684	-87.920451
BN-09	Bensenville	12	Wet	Poor	addition of native plants		41.943041	-87.935598
BN-10	Bensenville	12	Wet	Fair	aquatic plants, add to native plant buffer		41.94373	-87.928961
BN-11	Bensenville	12	Wet	Poor	add native plant buffer & native aquatic		41.941895	-87.93695
BN-12	Bensenville	12	Dry - Naturalized	Fair	removal of invasive addition of native	trash removal	41.940741	-87.936883
BN-13	Bensenville	12	Wet	Fair	remove invasive add native		41.940655	-87.936366
BN-14	Bensenville	12	Wet	Poor	native plant/aquatic plant		41.940906	-87.928578
BN-15	Bensenville	12	Wet	Poor	removal of invasive species	trash in basin	41.933358	-87.937651
BV-01	Broadview	14	Dry - Turf	Poor	Naturalize basin		41.854617	-87.848594
BV-02	Broadview	14	Unassessed	Unassessed			41.850545	-87.86529
BW-01	Bellwood	13	Wet	Poor	Estab native veg buffer	Stabilize eroding shorelines	41.882595	-87.869423
BW-02	Bellwood	13	Unassessed	Unassessed			41.892124	-87.882123
CH-01	Clarendon Hills	11	Unassessed	Unassessed			41.80924	-87.962861
CH-02	Clarendon Hills	11	Wet	Poor	vegetation		41.806164	-87.958537
CH-03	Clarendon Hills	11	Wet	Poor	vegetation		41.800685	-87.960031
CH-04	Clarendon Hills	11	Wet	Fair	increase wetland vegetation	shore stabilization	41.800558	-87.95883
EG-01	Elk Grove	6	Dry - Turf	Poor	Convert areas that pond to native veg, flow paths to bioswales		42.001483	-88.05005
EG-02	Elk Grove	6	Dry - Turf	Poor	Naturalize basin		41.999692	-88.051394

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
EG-03	Elk Grove	6	Dry - Turf	Poor	Convert areas that pond to native veg (looks like much of bottom) &/or create bioswales	Mng Canada goose population	41.997236	-88.051793
EG-04	Elk Grove	6	Dry - Turf	Poor	Convert areas that pond to native veg (much of bottom) &/or create wide bioswale along E side	Mng Canada goose population	41.99439	-88.051552
EG-05	Elk Grove	6	Constructed Wetland	Good	Diversify wetland veg	Mng invasive veg	41.993026	-88.054097
EG-06	Elk Grove	6	Unassessed	Unassessed			41.993212	-88.049729
EG-07	Elk Grove	6	Unassessed	Unassessed			41.994035	-88.046923
EG-08	Elk Grove	6	Unassessed	Unassessed			41.993177	-88.04684
EG-09	Elk Grove	6	Unassessed	Unassessed			41.992807	-88.045364
EG-10	Elk Grove	6	Dry - Turf	Poor			41.995106	-88.043805
EG-11	Elk Grove	5	Dry - Turf	Poor			41.993895	-88.037884
EG-12	Elk Grove	5	Wet w/ Extended Dry	Good	Diversify wetland veg	Mng invasive veg	42.002014	-88.03065
EG-13	Elk Grove	5	Constructed Wetland	Good	Diversify wetland veg	Mng invasive veg	42.000453	-88.029276
EG-14	Elk Grove	5	Unassessed	Unassessed			42.002936	-88.02849
EG-15	Elk Grove	5	Unassessed	Unassessed			42.002627	-88.027159
EG-16	Elk Grove	5	Unassessed	Unassessed			42.000476	-88.025055
EG-17	Elk Grove	5	Dry - Turf	Poor			42.002285	-88.020299
EG-18	Elk Grove	5	Constructed Wetland	Good			42.001383	-88.021321
EG-19	Elk Grove	5	Wet	Poor			42.003043	-88.009764
EG-20	Elk Grove	5	Dry - Turf	Poor	Convert CLC to bioswale, naturalize basin		42.000721	-88.006394



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
EG-21	Elk Grove	5	Wet	Poor			42.000032	-88.006693
EG-22	Elk Grove	5	Wet	Poor			42.000092	-88.005593
EG-23	Elk Grove	5	Wet	Poor			41.99941	-88.006967
EG-24	Elk Grove	5	Wet	Poor			41.999494	-88.005046
EG-25	Elk Grove	5	Wet	Poor			41.994779	-88.02546
EG-26	Elk Grove	5	Constructed Wetland	Good			41.996158	-88.02307
EG-27	Elk Grove	5	Wet	Poor			41.996042	-88.02203
EG-28	Elk Grove	5	Dry - Turf	Poor			41.995669	-88.019385
EG-29	Elk Grove	5	Constructed Wetland	Good			41.993092	-88.021037
EG-30	Elk Grove	5	Wet	Poor			41.993131	-88.016912
EG-31	Elk Grove	5	Wet	Poor			41.99443	-88.014745
EG-32	Elk Grove	5	Dry - Turf	Poor	Naturalize basin		41.993269	-87.997864
EG-33	Elk Grove	1	Dry - Turf	Poor	Naturalize basin		42.005944	-87.995536
EG-34	Elk Grove	1	Dry - Turf	Poor	Naturalize basin		42.00526	-87.987694
EG-35	Elk Grove	1	Dry - Turf	Poor			42.003373	-87.998491
EG-36	Elk Grove	1	Dry - Turf	Poor			42.00171	-87.989071
EH-01	Elmhurst	12	Wet	Poor	native plants		41.928947	-87.959183
EH-02	Elmhurst	12	Wet	Poor	addition of native plants	trash in water	41.930015	-87.921951
EH-03	Elmhurst	12	Wet	Fair		Retaining Wall around entire basin	41.928449	-87.923046
EH-04	Elmhurst	13	Wet	Fair			41.926701	-87.921908
EH-05	Elmhurst	2	Constructed Wetland	Fair			41.926832	-87.96614



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
EH-06	Elmhurst	2	Constructed Wetland	Fair			41.925626	-87.966131
EH-07	Elmhurst	13	Wet	Poor	add native plants		41.928336	-87.950017
EH-08	Elmhurst	13	Wet	Poor	add native plant& aquatic plant		41.927688	-87.950169
EH-09	Elmhurst	13	Wet	Poor	remove water's edge cover replace with native plant buffer		41.926919	-87.949378
EH-10	Elmhurst	13	Dry - Naturalized	Good			41.925089	-87.924191
EH-11	Elmhurst	2	Wet	Poor	Correct short circuiting; Permeable pavement/pavers		41.923804	-87.964078
EH-12	Elmhurst	2	Dry - Naturalized	Fair			41.922868	-87.965718
EH-13	Elmhurst	2	Constructed Wetland	Fair	expand wetland		41.921963	-87.966009
EH-14	Elmhurst	13	Dry - Turf	Poor			41.920372	-87.951709
EH-15	Elmhurst	13	Dry - Turf	Poor			41.918267	-87.950808
EH-16	Elmhurst	13	Wet	Poor	native plant buffer, native aquatic plants		41.919575	-87.947488
EH-17	Elmhurst	13	Dry - Naturalized	Fair			41.920663	-87.941631
EH-18	Elmhurst	13	Wet	Fair			41.917302	-87.955695
EH-19	Elmhurst	13	Dry - Naturalized	Fair			41.916291	-87.955685
EH-20	Elmhurst	2	Dry - Turf	Poor	add native vegetation		41.911325	-87.96083
EH-21	Elmhurst	13	Wet	Poor	native plants & native aquatic plants		41.911138	-87.925923
EH-22	Elmhurst	13	Wet	Fair	add 30-40 ft native plant buffer & native aquatic plants		41.913327	-87.92147
EH-23	Elmhurst	2	Dry - Turf	Poor	add native vegetation		41.898765	-87.952473
EH-24	Elmhurst	13	Dry - Naturalized	Good	none		41.899362	-87.945278



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
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EH-25	Elmhurst	13	Dry - Turf	Poor			41.898096	-87.939343
EH-26	Elmhurst	2	Dry - Turf	Poor	partial native species plantings to allow for open grass space use		41.896118	-87.959817
EH-27	Elmhurst	2	Wet	Poor	constructed wetland		41.893395	-87.962059
EH-28	Elmhurst	2	Wet	Good			41.874726	-87.958309
EH-29	Elmhurst	3	Constructed Wetland	Good			41.868562	-87.95466
EH-30	Elmhurst	3	Wet	Poor	Add wetland plants.	Add aeration	41.864927	-87.95275
EH-31	Elmhurst	3	Dry - Turf	Poor	Constructed wetland		41.867579	-87.935587
EH-32	Elmhurst	3	Dry - Turf	Poor			41.869175	-87.92933
EH-33	Elmhurst	3	Dry - Turf	Poor			41.863823	-87.949446
EH-34	Elmhurst	3	Dry - Naturalized	Fair			41.863591	-87.949006
EH-35	Elmhurst	3	Dry - Naturalized	Good			41.863623	-87.948395
EH-36	Elmhurst	3	Wet	Fair	Extend wetland buffer.		41.864382	-87.947576
EH-37	Elmhurst	3	Dry - Turf	Poor			41.863079	-87.946737
EH-38	Elmhurst	3	Unassessed	Unassessed			41.861663	-87.947523
EH-39	Elmhurst	3	Wet	Fair	Add wetland plants.		41.863708	-87.939396
EH-40	Elmhurst	3	Constructed Wetland	Good			41.861766	-87.941298
EH-41	Elmhurst	3	Wet	Fair	Add additional wetland plants around pond area		41.862086	-87.937668
EH-42	Elmhurst	3	Wet	Fair	Add additional wetland plants around pond		41.862142	-87.934149
EH-43	Elmhurst	3	Wet	Fair	Add additional wetland plants		41.863243	-87.932328
EH-44	Elmhurst	4	Unassessed	Unassessed			41.873076	-87.919239



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
HD-01	Hinsdale	11	Unassessed	Unassessed			41.81326	-87.947367
HD-02	Hinsdale	11	Unassessed	Unassessed			41.812351	-87.946417
HD-03	Hinsdale	11	Wet	Poor	vegetation & bank stabilization		41.815269	-87.940631
HD-04	Hinsdale	11	Unassessed	Unassessed			41.811741	-87.940788
HD-05	Hinsdale	3	Wet	Poor	vegetation		41.824322	-87.922731
HD-06	Hinsdale	3	Wet	Poor	vegetation		41.822062	-87.924911
HD-07	Hinsdale	3	Wet	Poor	vegetation		41.821837	-87.924556
HD-08	Hinsdale	3	Wet	Poor	vegetation		41.821774	-87.92371
HD-09	Hinsdale	3	Wet	Poor	vegetation		41.821013	-87.922896
HD-10	Hinsdale	3	Wet	Poor	bank vegetation		41.819281	-87.923983
HD-11	Hinsdale	3	Unassessed	Unassessed			41.818266	-87.920487
HD-12	Hinsdale	3	Unassessed	Unassessed			41.817888	-87.914945
HS-01	Hillside	14	Wet	Poor	Convert inlet swale to bioswale, estab native buffer on W side		41.871054	-87.902744
HS-02	Hillside	14	"Volunteer" Wetland	Poor	Diversify wetland veg	Mng invasive veg, remove trash	41.870847	-87.89492
HS-03	Hillside	14	"Volunteer" Wetland	Fair	Diversify native veg, install native buffer	Mng invasive veg, control woody spp	41.868995	-87.909661
HS-04	Hillside	14	Wet w/ Extended Dry	Fair	Establish native veg buffer and side slope vegetation		41.864211	-87.893019
HS-05	Hillside	14	Unassessed	Unassessed			41.876621	-87.886139
HS-06	Hillside	14	Unassessed	Unassessed			41.873568	-87.896334
HS-07	Hillside	14	Unassessed	Unassessed			41.873664	-87.894432
HS-08	Hillside	14	Unassessed	Unassessed			41.872166	-87.88403



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HS-09	Hillside	4	Unassessed	Unassessed			41.871726	-87.91408
HS-10	Hillside	4	Unassessed	Unassessed			41.86982	-87.917794
HS-11	Hillside	4	Unassessed	Unassessed			41.869381	-87.916075
HS-12	Hillside	4	Unassessed	Unassessed			41.862655	-87.919114
HS-13	Hillside	4	Unassessed	Unassessed			41.862748	-87.917262
IT-01	Itasca	6	Unassessed	Unassessed			41.991572	-88.04104
IT-02	Itasca	5	Wet	Poor			41.990202	-88.036642
IT-03	Itasca	5	Wet	Poor			41.988982	-88.033401
IT-04	Itasca	5	Wet	Fair		Basin has one fountain	41.990973	-88.016624
IT-05	Itasca	5	Wet	Poor	Consider native plantings to help with erosion and water quality.	Two aerators in basin. Sump pumps discharging directly into basin.	41.991162	-88.015389
IT-06	Itasca	5	Wet	Fair	Native planting at water's edge; remove turf grass and large rocks.	Inlet channel recently reshaped - needs to be restored; Remove debris from outlet structure; Sediment entering basin from upstream tollway construction areas; dredge in future?	41.988762	-88.022007
IT-07	Itasca	5	Wet	Poor		Basin has one fountain	41.988491	-88.018123
IT-08	Itasca	5	Wet	Poor		Basin has one fountain	41.986902	-88.016272
IT-09	Itasca	5	Constructed Wetland	Fair		Invasive trees plants in wetland plants	41.986095	-88.015275
IT-10	Itasca	5	Wet	Poor			41.986654	-88.01104
IT-11	Itasca	5	Wet	Poor		Basin has one fountain.	41.989759	-88.009847
IT-12	Itasca	5	Wet	Fair	Place rip rap or native wetland plants at water's edge	High erosion at water's edge	41.989982	-88.007499
IT-13	Itasca	5	Wet	Fair		Basin is part of water treatment plant	41.99039	-88.00643



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
IT-14	Itasca	5	Wet	Poor	Add native wetland plants at water's edge	Basin has swans during summer season	41.990835	-88.003769
IT-15	Itasca	5	Wet	Good			41.991708	-87.998461
IT-16	Itasca	5	Wet	Poor		Basin recently graded, permanent landscaping not yet constructed	41.988999	-88.007859
IT-17	Itasca	5	Wet	Poor		Basin has one fountain. Pair of swans reside during the summer.	41.989226	-88.003828
IT-18	Itasca	1	Wet	Fair	Remove invasive plants at water's edge, replace w/ native wetland plants.	Incisive plants at water's edge	41.986013	-87.998752
IT-19	Itasca	6	Unassessed	Unassessed			41.988678	-88.048315
IT-20	Itasca	6	Wet	Fair			41.986684	-88.047097
IT-21	Itasca	6	Wet	Good	Remove invasive plants and trees on slope	Invasive plants and trees on slope	41.985022	-88.043962
IT-22	Itasca	5	Wet	Fair	Place rip rap at water's edge	Moderate erosion at water's edge	41.984865	-88.03261
IT-23	Itasca	5	Constructed Wetland	Good			41.984735	-88.030167
IT-24	Itasca	5	Wet	Fair			41.984392	-88.031815
IT-25	Itasca	6	Dry - Turf	Poor	native plants, get rid of channel		41.982937	-88.039222
IT-26	Itasca	6	Wet	Fair			41.981472	-88.039249
IT-27	Itasca	5	Wet	Fair		Basin has one fountain	41.98183	-88.03437
IT-28	Itasca	5	Wet	Fair		Add aerators to basin	41.982848	-88.0205
IT-29	Itasca	5	Wet	Poor		Add aerators to basin	41.982132	-88.01873
IT-30	Itasca	5	Wet	Poor		Add aerators to basin	41.981682	-88.018453
IT-31	Itasca	5	Wet	Poor		Add aerators to basin	41.981321	-88.018718



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IT-32	Itasca	5	Wet	Fair		Invasive plants at water's edge	41.980844	-88.019905
IT-33	Itasca	5	Wet	Fair			41.98086	-88.017072
IT-34	Itasca	5	Wet	Fair	Remove invasive plants and trees from side slope. Plant native wetland plants on side slope.	Side slope cover vegetation minimal and overtaken by invasive trees.	41.981937	-88.016516
IT-35	Itasca	5	Wet	Fair		Basin has two fountains/airators	41.982761	-88.015208
IT-36	Itasca	5	Wet	Fair	Fix sea wall and remove invasive plants. Basin would benefit from fountain for aeration.	Sea wall made with blocks is sliding into basin. Invasive plants at water's edge	41.982488	-88.01072
IT-37	Itasca	5	Wet	Poor		Basin has one fountain not in use.	41.983268	-88.008522
IT-38	Itasca	5	Wet	Poor			41.983221	-88.005761
IT-39	Itasca	1	Wet	Fair		Invasive plants on slope	41.984405	-87.991776
IT-40	Itasca	6	Dry - Naturalized	Good			41.975877	-88.028037
IT-41	Itasca	6	Wet	Poor	Place rip rap at water's edge	Basin has one fountain. Moderate to high erosion at water's edge.	41.975875	-88.025319
IT-42	Itasca	6	Wet	Poor			41.977197	-88.024839
IT-43	Itasca	6	Dry - Naturalized	Good		Replant slopes	41.97851	-88.024795
IT-44	Itasca	5	Constructed Wetland	Good			41.97831	-88.021952
IT-45	Itasca	5	Wet	Fair	Remove invasive plants & trees from side slope and bottom. Plant native wetland plants at water's edge.	Basin overgrown with trees and plants	41.979634	-88.017618
IT-46	Itasca	5	Dry - Naturalized	Poor	Remove invasive plants and trees.	Invasive plants and trees has overtaken the basin	41.979068	-88.015596

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IT-47	Itasca	5	Wet	Fair		Basin has two aerators. Basin water elevation controlled by pumps that discharge into storm sewer system.	41.977207	-88.015851
IT-48	Itasca	5	Wet	Fair	Remove invasive plants and trees from North slope	North slope has invasive plants and trees. Install aerators in basin.	41.979425	-88.01295
IT-49	Itasca	1	Dry - Turf	Poor			41.980434	-88.002638
IT-50	Itasca	1	Wet	Good	Remove invasive trees and plants on slope.	Invasive trees and plants on slope	41.980619	-87.992423
IT-51	Itasca	1	Wet	Good	Regrade side slope in areas of high erosion, place rap at water's edge.	Side slope grasses not cut. Some areas have high erosion at water's edge.	41.975953	-87.992912
IT-52	Itasca	6	Dry - Turf	Poor			41.973055	-88.028362
IT-53	Itasca	6	Dry - Naturalized	Good			41.97272	-88.027621
IT-54	Itasca	6	Dry - Turf	Poor			41.972574	-88.026611
IT-55	Itasca	6	Dry - Turf	Poor	Convert to constructed wetland		41.973159	-88.025379
IT-56	Itasca	6	Wet	Poor			41.972645	-88.006865
IT-57	Itasca	6	Wet	Poor			41.971262	-88.00536
IT-58	Itasca	6	Wet	Fair		Basin has one fountain	41.972878	-88.003929
IT-59	Itasca	6	Wet	Poor			41.977991	-87.999423
IT-60	Itasca	6	Wet	Fair	Place rip rap at water's edge.	Basin has one fountain. Moderate to high erosion at water's edge.	41.971846	-87.999579
IT-61	Itasca	6	Wet	Fair			41.974232	-87.99625
IT-62	Itasca	6	Constructed Wetland	Good		Low water level in basin	41.972813	-87.996263
IT-63	Itasca	6	Dry - Turf	Poor		Picnic shelter in bottom of basin	41.970223	-88.021086



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
IT-64	Itasca	6	Wet	Fair			41.969558	-88.021541
IT-65	Itasca	6	Dry - Turf	Poor			41.969549	-88.020544
IT-66	Itasca	6	Wet	Poor		Basin has one fountain. Swans in basin during summer.	41.969898	-88.012534
IT-67	Itasca	6	Dry - Turf	Poor		Basin has pump station	41.968693	-88.000589
IT-68	Itasca	6	Wet	Fair	Place rip rap at water's edge	Moderate erosion at water's edge.	41.969008	-87.997426
IT-69	Itasca	6	Wet	Poor		Basin has two fountains	41.965628	-88.033657
IT-70	Itasca	6	Wet	Poor		Basin has one fountain	41.964991	-88.032036
IT-71	Itasca	6	Wet	Fair	Remove invasive plants and replace with rip rap at water's edge.	Invasive plant and trees at water's edge. Moderate to high erosion at water's edge.	41.966256	-88.029869
IT-72	Itasca	6	Wet	Fair	Remove invasive plants and trees at water's edge, replace with rip rap.	Invasive plants and trees at water's edge. moderate to high erosion at water's edge	41.966422	-88.027272
IT-73	Itasca	6	Constructed Wetland	Good	Remove invasive plants and trees from wetlands.	Invasive plants and trees in wetlands.	41.963929	-88.027602
IT-74	Itasca	6	Wet	Fair			41.959796	-88.040656
IT-75	Itasca	6	Wet	Fair	more native plants		41.959786	-88.039141
IT-76	Itasca	6	Wet	Poor	native plants stilling basins		41.961675	-88.036088
IT-77	Itasca	6	Wet w/ Extended Dry	Good			41.96096	-88.030424
IT-78	Itasca	6	Wet	Poor		Basin has one fountain	41.958231	-88.032228
IT-79	Itasca	6	Wet	Good		Basin has three fountains	41.957375	-88.03208
IT-80	Itasca	1	Wet	Fair			41.956601	-88.004776
LB-01	Lombard	7	Dry - Naturalized	Fair			41.912204	-88.023561



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LB-02	Lombard	7	Dry - Turf	Poor	Install native plants		41.91118	-88.02612
LB-03	Lombard	7	Dry - Naturalized	Good			41.910385	-88.025502
LB-04	Lombard	7	Dry - Naturalized	Good			41.909149	-88.021649
LB-05	Lombard	7	Dry - Naturalized	Good		Clean FES; NE FES separated from pipe	41.910524	-88.016907
LB-06	Lombard	7	Unassessed	Unassessed			41.910971	-88.015322
LB-07	Lombard	7	Dry - Turf	Poor			41.91033	-88.014321
LB-08	Lombard	7	Dry - Naturalized	Good		Currently under maintenance for plantings (?)	41.910567	-88.013237
LB-09	Lombard	7	Unassessed	Unassessed			41.909775	-88.0155
LB-10	Lombard	7	Dry - Turf	Good		Currently under maintenance plantings(?)	41.909228	-88.012945
LB-100	Lombard	10	Wet	Poor	remove rip rap, install native plants at water's edge		41.843663	-87.991607
LB-101	Lombard	10	Dry - Turf	Poor	Remove short circuit, Install native plants		41.838991	-87.999648
LB-102	Lombard	10	Wet	Poor			41.83828	-87.997555
LB-103	Lombard	10	Unassessed	Unassessed			41.83701	-87.995385
LB-11	Lombard	7	Dry - Turf	Poor			41.90745	-88.028515
LB-12	Lombard	7	Dry - Turf	Poor	Install native plants		41.907443	-88.025685
LB-13	Lombard	7	Wet w/ Extended Dry (native plants)	Fair			41.906903	-88.02467
LB-14	Lombard	7	Dry - Turf	Poor			41.906217	-88.024868
LB-15	Lombard	7	Dry - Naturalized	Fair			41.906329	-88.024123



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LB-16	Lombard	7	Dry - Turf	Poor			41.905191	-88.028057
LB-17	Lombard	7	Constructed Wetland	Fair			41.906914	-88.015354
LB-18	Lombard	7	Constructed Wetland	Good			41.906956	-88.012968
LB-19	Lombard	7	Dry - Naturalized	Good			41.906247	-88.013862
LB-20	Lombard	7	Wet	Fair			41.906326	-88.011874
LB-21	Lombard	7	Dry - Naturalized	Fair		Outlet is also Rock Apron	41.9067	-88.008544
LB-22	Lombard	7	Constructed Wetland	Good			41.905965	-88.00974
LB-23	Lombard	7	Dry - Turf	Poor	Install native plants		41.904944	-88.020645
LB-24	Lombard	7	Wet	Poor			41.905078	-88.018527
LB-25	Lombard	7	Unassessed	Unassessed			41.904243	-88.015534
LB-26	Lombard	7	Wet	Poor			41.903762	-88.016667
LB-27	Lombard	7	Wet	Poor			41.903402	-88.00624
LB-28	Lombard	2	Unassessed	Unassessed			41.901987	-87.999701
LB-29	Lombard	2	Wet	Fair		possible native plants	41.89383	-88.000385
LB-30	Lombard	2	Constructed Wetland	Good			41.890232	-88.009411
LB-31	Lombard	2	Unassessed	Unassessed			41.891231	-87.999436
LB-32	Lombard	2	Dry - Turf	Poor	Install native plants		41.889528	-87.994142
LB-33	Lombard	2	Wet	Fair	install native plants		41.888689	-87.99554
LB-34	Lombard	2	Wet w/ Extended Dry	Fair			41.887347	-87.99495
LB-35	Lombard	2	Dry - Turf	Poor	Remove the short circuit, install native plants		41.888587	-87.990389

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LB-36	Lombard	2	Dry - Turf	Poor			41.880603	-87.995421
LB-37	Lombard	8	Dry - Turf	Poor	Install native plants, remove short circuit		41.877123	-87.991321
LB-38	Lombard	8	Wet	Poor	retrofit slope and bottom to native vegetation	algae/sediment accumulation at outlets; maintain invasive species	41.873187	-88.000235
LB-39	Lombard	8	Dry - Turf	Poor	Possibly add more native vegetation	Normal upkeep is good	41.873683	-87.989934
LB-40	Lombard	8	Dry - Turf	Poor	Install native plants		41.871204	-87.990272
LB-41	Lombard	8	Dry - Turf	Poor	install native plants		41.871162	-87.987357
LB-42	Lombard	8	Wet	Fair			41.869777	-87.990495
LB-43	Lombard	8	Dry - Turf	Poor			41.870413	-87.987313
LB-44	Lombard	8	Dry - Turf	Poor	Install native plants		41.867465	-87.992736
LB-45	Lombard	8	Dry - Turf	Good	Install native plants		41.868086	-87.98727
LB-46	Lombard	8	Wet w/ Extended Dry	Fair	retrofit bottom and slopes to native plants		41.865662	-88.011596
LB-47	Lombard	8	Wet w/ Extended Dry	Fair	retrofit slopes and bottom to native vegetation	Clean FES of rocks, Reinstall pipe & FES and secure	41.864773	-88.006976
LB-48	Lombard	8	Wet	Poor	retrofit slope and bottom to native plants	Manage/clear vegetation at inlet	41.862167	-88.013188
LB-49	Lombard	8	Dry - Turf	Poor	retrofit slope and bottom to native plants	Inlet at NW corner filled in with sediment	41.861051	-88.013428
LB-50	Lombard	8	Wet	Good	retrofit bottom and turf to native plants		41.861856	-88.00879
LB-51	Lombard	8	Dry - Naturalized	Fair			41.861265	-88.007425
LB-52	Lombard	8	Wet	Fair	repair shoreline erosion		41.863265	-87.999292



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LB-53	Lombard	8	Wet	Poor	retrofit slopes and bottom to native vegetation	Clean sediment/garbage from outlet	41.863703	-87.998414
LB-54	Lombard	8	Dry - Turf	Poor	retrofit slopes and bottom to native vegetation		41.864471	-87.992587
LB-55	Lombard	8	Dry - Turf	Poor			41.864445	-87.990765
LB-56	Lombard	8	Dry - Turf	Good	Install native plants		41.863737	-87.992193
LB-57	Lombard	8	Dry - Naturalized	Good			41.86239	-87.997902
LB-58	Lombard	8	Unassessed	Unassessed			41.859253	-88.013516
LB-59	Lombard	8	Unassessed	Unassessed			41.858891	-88.011749
LB-60	Lombard	8	Wet	Fair	retrofit eroded bottom of slopes with native vegetation	Manage algae, invasive species	41.859269	-88.007551
LB-61	Lombard	8	Wet w/ Extended Dry	Fair			41.859617	-87.995815
LB-62	Lombard	8	Dry - Turf	Poor	Install native plants		41.859584	-87.993804
LB-63	Lombard	8	Dry - Naturalized	Good			41.85979	-87.992002
LB-64	Lombard	8	Wet w/ Extended Dry	Good			41.85733	-88.006293
LB-65	Lombard	8	Wet	Good			41.857356	-88.005021
LB-66	Lombard	8	Wet	Fair			41.85636	-88.005743
LB-67	Lombard	8	Wet	Fair			41.855831	-88.006272
LB-68	Lombard	8	Wet w/ Extended Dry	Poor	retrofit slopes and bottom to native vegetation		41.853283	-88.014632
LB-69	Lombard	8	Wet w/ Extended Dry	Good	retrofit slopes and bottom to native vegetation	Manage debris/vegetation at the inlets/ outlets	41.852594	-88.015217
LB-70	Lombard	8	Wet	Fair		remove garbage, repair shoreline erosion	41.852703	-88.005908



LB-71	Lombard			Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
		8	Wet w/ Extended Dry	Fair	retrofit slopes and bottom to native vegetation	clear sediment/vegetation from inlets/outlets	41.850771	-88.014378
LB-72	Lombard	8	Dry - Naturalized	Good	retrofit slopes and bottom to native vegetation	manage invasive species	41.850888	-88.012309
LB-73	Lombard	8	Wet	Fair	retrofit slopes and bottom to native vegetation	manage invasive species	41.849741	-88.013423
LB-74	Lombard	8	Unassessed	Unassessed			41.849536	-88.013841
LB-75	Lombard	8	Dry - Turf	Poor	Install Native Plants		41.848987	-88.013497
LB-76	Lombard	8	Dry - Turf	Poor		Install native plants	41.851289	-88.005663
LB-77	Lombard	10	Dry - Turf	Poor	install native plants		41.849667	-88.007296
LB-78	Lombard	10	Dry - Turf	Poor			41.849685	-88.007132
LB-79	Lombard	10	Dry - Turf	Poor	Install native plants	garbage	41.849172	-88.006345
LB-80	Lombard	10	Wet	Poor	Install native plants	Repair shoreline erosion	41.849278	-88.005278
LB-81	Lombard	10	Wet	Poor	Install native plants	FES disconnected from pipe	41.849191	-88.002376
LB-82	Lombard	10	Dry - Turf	Poor			41.847115	-88.011967
LB-83	Lombard	10	Wet	Poor	Remove rip rap, install native plants		41.847035	-88.007475
LB-84	Lombard	10	Wet	Poor	Remove rip rap install native plants		41.84719	-88.005371
LB-85	Lombard	10	Dry - Turf	Poor	native plant install		41.847574	-88.00288
LB-86	Lombard	10	Dry - Turf	Poor	Install native plants		41.847548	-88.002011
LB-87	Lombard	10	Dry - Turf	Fair	Install native plants		41.846645	-88.002268
LB-88	Lombard	10	Wet	Poor	Remove rip rap, install native plants at water's edge	Repair shoreline erosion	41.844749	-88.012166



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
LB-89	Lombard	10	Dry - Turf	Poor	install native plants		41.843984	-88.006806
LB-90	Lombard	10	Constructed Wetland	Good			41.845529	-88.00246
LB-91	Lombard	10	Wet	Poor			41.844737	-87.999465
LB-92	Lombard	10	Wet	Poor	Remove rip rap install native plants at water's edge		41.841985	-88.011824
LB-93	Lombard	10	Dry - Naturalized	Good			41.840222	-88.012388
LB-94	Lombard	10	Wet	Poor	Remove rip rap, install native plants at water's edge		41.839296	-88.011828
LB-95	Lombard	10	Wet	Poor	Remove rip rap, install native plants at water's edge		41.841637	-88.00187
LB-96	Lombard	10	Wet	Fair		trash	41.840653	-88.000521
LB-97	Lombard	10	Wet w/ Extended Dry	Poor		plant more native species	41.84008	-87.998624
LB-98	Lombard	10	Wet w/ Extended Dry	Good	Install native plants		41.839646	-87.999776
LB-99	Lombard	10	Wet	Poor	Remove rip rap, install native plants at water's edge	repair shoreline erosion	41.842786	-87.993553
LP-01	La Grange Park	4	Wet	Fair	Establish native veg buffer; install oil & grit separators	Mng invasive veg, stabilize eroding shorelines	41.820939	-87.865086
LP-02	La Grange Park	4	Wet	Poor			41.82181	-87.888708
LP-03	La Grange Park	4	Dry - Turf	Fair	Naturalize entire basin		41.822492	-87.888533
MP-01	Melrose Park	13	Unassessed	Unassessed			41.89539	-87.877876
NL-01	Northlake	12	Wet	Fair		Mng invasive veg	41.933681	-87.914797
NL-02	Northlake	12	Wet	Poor	Estab native veg buffer		41.929104	-87.915077
NL-03	Northlake	12	Wet w/ Extended Dry	Good		Mng invasive veg	41.929071	-87.91109

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
NL-04	Northlake	12	Constructed Wetland	Good		Mng invasive veg, ensure short circuiting not occurring	41.924833	-87.916616
NL-05	Northlake	13	Dry - Turf	Poor	Address short-circuiting (convert rock-lined channels to infiltration trench or bioswale), naturalize basin		41.919729	-87.910651
NL-06	Northlake	13	Wet	Fair		Mng invasive veg	41.920782	-87.90982
NL-07	Northlake	13	Wet	Poor			41.914957	-87.905186
NL-08	Northlake	13	Dry - Turf	Poor	Naturalize basin		41.909228	-87.902262
NL-09	Northlake	13	Dry - Turf	Poor	Correct short circuiting (remove CLC), naturalize basin (at min, convert CLC to bioswale)		41.908509	-87.901667
NL-10	Northlake	13	Dry - Turf	Poor	Naturalize basin		41.904513	-87.909932
NL-11	Northlake	13	"Volunteer" Wetland	Fair	Diversify wetland veg	Mng invasive veg	41.90394	-87.911163
NL-12	Northlake	13	Dry - Turf	Poor	Naturalize basin		41.90393	-87.907804
NL-13	Northlake	13	Dry - Turf	Fair	Naturalize entire basin bottom, diversify bioswale veg	Mng invasive veg	41.903686	-87.907234
NL-14	Northlake	13	Dry - Turf	Fair	Address short circuiting: lengthen flow path in vegetated swale, naturalize entire basin bottom, diversify bioswale veg	Mng invasive veg	41.903575	-87.90658
NL-15	Northlake	13	"Volunteer" Wetland	Fair	Estab native veg buffer, diversify wetland veg	Mng invasive veg	41.902292	-87.912126
NL-16	Northlake	13	Constructed Wetland	Fair	Diversify wetland veg	Mng invasive veg	41.901992	-87.906006
NL-17	Northlake	13	Unassessed	Unassessed			41.900844	-87.906652
NL-18	Northlake	13	Unassessed	Unassessed			41.920101	-87.917445

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
NL-19	Northlake	13	Unassessed	Unassessed			41.926963	-87.911168
NL-20	Northlake	13	Unassessed	Unassessed			41.906141	-87.914151
OB-01	Oak Brook	3	Wet	Poor			41.858833	-87.9471
OB-02	Oak Brook	3	Wet	Poor			41.858701	-87.924191
OB-03	Oak Brook	3	Wet	Poor			41.857209	-87.920939
OB-04	Oak Brook	3	Wet	Poor		Dye in water	41.856893	-87.952595
OB-05	Oak Brook	3	Wet	Poor			41.857091	-87.952064
OB-06	Oak Brook	3	Wet	Poor			41.857357	-87.951134
OB-07	Oak Brook	3	Wet	Poor			41.856706	-87.951587
OB-08	Oak Brook	3	Wet	Poor		Dye in water	41.855471	-87.950072
OB-09	Oak Brook	9	Wet	Poor			41.855012	-87.955095
OB-10	Oak Brook	9	Wet	Poor		Dye in water	41.855633	-87.953345
OB-100	Oak Brook	10	Unassessed	Unassessed			41.831306	-87.96026
OB-101	Oak Brook	10	Unassessed	Unassessed			41.828941	-87.954716
OB-102	Oak Brook	10	Wet	Fair			41.831849	-87.949416
OB-103	Oak Brook	10	Wet	Poor			41.831614	-87.948708
OB-104	Oak Brook	11	Wet	Poor			41.830017	-87.944786
OB-105	Oak Brook	3	Wet	Poor			41.830599	-87.942728
OB-106	Oak Brook	3	Wet	Poor	convert to constructed wetland buffer (adjacent to Salt Creek)		41.831921	-87.942223
OB-107	Oak Brook	3	Wet	Poor			41.83224	-87.930546
OB-108	Oak Brook	3	Wet	Poor			41.830872	-87.925965



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
OB-109	Oak Brook	10	Wet	Poor	Add Wetland plants.	Add aerator	41.824576	-87.988636
OB-11	Oak Brook	9	Wet	Poor		Dye in water	41.855148	-87.953078
OB-110	Oak Brook	10	Wet	Poor	Add wetland plants.	Add aerators	41.823176	-87.982248
OB-111	Oak Brook	10	Wet	Poor			41.826082	-87.976002
OB-112	Oak Brook	10	Wet	Poor			41.825677	-87.972318
OB-113	Oak Brook	10	Wet	Fair			41.824863	-87.970573
OB-114	Oak Brook	10	Wet	Fair		Looks like dye in water	41.827553	-87.967558
OB-115	Oak Brook	10	Wet	Fair			41.826489	-87.967094
OB-116	Oak Brook	10	Wet	Poor		Algae	41.8276	-87.964103
OB-117	Oak Brook	10	Wet	Poor			41.825522	-87.952001
OB-118	Oak Brook	10	Unassessed	Unassessed			41.824834	-87.951749
OB-119	Oak Brook	11	Wet	Poor			41.826276	-87.946532
OB-12	Oak Brook	9	Wet	Poor			41.85547	-87.951324
OB-120	Oak Brook	11	Wet	Poor			41.827416	-87.945676
OB-121	Oak Brook	11	Wet	Poor			41.828362	-87.943465
OB-122	Oak Brook	3	Wet	Poor			41.828305	-87.941716
OB-123	Oak Brook	3	Wet	Poor			41.827206	-87.924704
OB-124	Oak Brook	3	Wet	Poor			41.827912	-87.924205
OB-125	Oak Brook	3	Wet	Poor			41.828368	-87.920731
OB-126	Oak Brook	11	Wet	Poor			41.82167	-87.951465
OB-127	Oak Brook	11	Wet	Poor			41.823189	-87.951261



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
OB-128	Oak Brook	11	Wet	Poor			41.82246	-87.949884
OB-129	Oak Brook	11	Unassessed	Unassessed			41.823329	-87.948362
OB-13	Oak Brook	9	Wet	Poor			41.854596	-87.951483
OB-130	Oak Brook	11	Unassessed	Unassessed			41.82436	-87.949843
OB-131	Oak Brook	3	Wet	Poor			41.823326	-87.928453
OB-132	Oak Brook	3	Wet	Poor			41.824115	-87.925325
OB-132	Oak Brook	3	Wet	Poor			41.824859	-87.927794
OB-134	Oak Brook	3	Wet	Poor			41.824532	-87.924856
OB-135	Oak Brook	3	Wet	Poor			41.824816	-87.92383
OB-136	Oak Brook	3	Wet	Fair			41.825362	-87.923658
OB-137	Oak Brook	3	Wet	Poor			41.82405	-87.923891
OB-138	Oak Brook	11	Unassessed	Unassessed			41.819487	-87.950576
OB-139	Oak Brook	11	Wet	Poor			41.819823	-87.949277
OB-14	Oak Brook	9	Wet	Poor			41.854676	-87.949359
OB-140	Oak Brook	11	Unassessed	Unassessed			41.820573	-87.948915
OB-141	Oak Brook	11	Wet	Poor			41.821892	-87.945876
OB-142	Oak Brook	11	Unassessed	Unassessed			41.819603	-87.946071
OB-143	Oak Brook	11	Unassessed	Unassessed			41.820224	-87.943014
OB-144	Oak Brook	11	Wet	Poor			41.820632	-87.94034
OB-145	Oak Brook	11	Wet	Poor			41.819615	-87.940309
OB-146	Oak Brook	10	Unassessed	Unassessed			41.824695	-87.966487



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
OB-147	Oak Brook	10	Wet	Poor	convert to constructed wetland		41.824746	-87.965534
OB-148	Oak Brook	4	Unassessed	Unassessed			41.861843	-87.91928
OB-15	Oak Brook	3	Wet	Poor			41.851841	-87.947643
OB-16	Oak Brook	3	Wet	Poor			41.851713	-87.946499
OB-17	Oak Brook	3	Unassessed	Unassessed			41.851186	-87.944209
OB-18	Oak Brook	3	Unassessed	Unassessed			41.852347	-87.938969
OB-19	Oak Brook	3	Unassessed	Unassessed			41.848623	-87.946989
OB-20	Oak Brook	3	Unassessed	Unassessed			41.848902	-87.945768
OB-21	Oak Brook	3	Unassessed	Unassessed			41.847288	-87.94718
OB-22	Oak Brook	3	Unassessed	Unassessed			41.847317	-87.946068
OB-23	Oak Brook	3	Unassessed	Unassessed			41.849493	-87.933835
OB-24	Oak Brook	3	Unassessed	Unassessed			41.849625	-87.933177
OB-25	Oak Brook	3	Unassessed	Unassessed			41.849173	-87.933396
OB-26	Oak Brook	3	Unassessed	Unassessed			41.849215	-87.932774
OB-27	Oak Brook	3	Wet	Poor		Side slopes covered with erosion blanket	41.850553	-87.928815
OB-28	Oak Brook	3	Unassessed	Unassessed			41.849576	-87.92887
OB-29	Oak Brook	10	Wet	Fair			41.846346	-87.98247
OB-30	Oak Brook	10	Wet	Fair			41.841738	-87.991471
OB-31	Oak Brook	10	Wet	Fair		Seemed to have a dye in it	41.842256	-87.98965
OB-32	Oak Brook	10	Wet	Fair		Seemed to have a dye in it	41.84245	-87.989184
OB-33	Oak Brook	10	Wet	Fair			41.843024	-87.987009



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
OB-34	Oak Brook	10	Wet	Fair			41.842575	-87.986692
OB-35	Oak Brook	10	Wet	Fair		Seemed to have a dye in it	41.845178	-87.982552
OB-36	Oak Brook	10	Wet	Fair			41.845491	-87.981929
OB-37	Oak Brook	10	Unassessed	Unassessed			41.839058	-87.991372
OB-38	Oak Brook	10	Dry - Turf	Fair			41.841929	-87.973906
OB-39	Oak Brook	10	Unassessed	Unassessed			41.843989	-87.969802
OB-40	Oak Brook	10	Wet	Poor			41.842459	-87.955981
OB-41	Oak Brook	10	Wet	Poor			41.841558	-87.956035
OB-42	Oak Brook	10	Wet	Poor			41.841441	-87.95488
OB-43	Oak Brook	3	Wet	Poor			41.844959	-87.939308
OB-44	Oak Brook	3	Wet	Poor			41.846094	-87.935349
OB-45	Oak Brook	3	Wet	Poor			41.846238	-87.933297
OB-46	Oak Brook	3	Wet	Poor			41.844909	-87.935532
OB-47	Oak Brook	3	Wet	Poor			41.845701	-87.932679
OB-48	Oak Brook	3	Wet w/ Extended Dry	Poor			41.846984	-87.928668
OB-49	Oak Brook	10	Wet	Poor			41.840943	-87.946431
OB-50	Oak Brook	3	Wet	Poor			41.842909	-87.938346
OB-51	Oak Brook	3	Wet	Poor			41.843304	-87.935621
OB-52	Oak Brook	3	Wet	Poor			41.842532	-87.93595
OB-53	Oak Brook	3	Dry - Naturalized	Fair			41.84405	-87.928615
OB-54	Oak Brook	10	Wet	Poor			41.838529	-87.962684



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
OB-55	Oak Brook	10	Wet	Poor			41.840009	-87.959684
OB-56	Oak Brook	10	Wet	Poor			41.839196	-87.953955
OB-57	Oak Brook	10	Wet	Poor			41.838736	-87.951995
OB-58	Oak Brook	10	Wet	Poor			41.838549	-87.951223
OB-59	Oak Brook	10	Wet	Poor			41.838333	-87.950098
OB-60	Oak Brook	10	Wet	Poor			41.837443	-87.947166
OB-61	Oak Brook	10	Wet	Poor			41.836643	-87.943646
OB-62	Oak Brook	3	Wet	Poor			41.838007	-87.937556
OB-63	Oak Brook	3	Wet	Poor			41.83846	-87.931595
OB-64	Oak Brook	3	Wet	Poor			41.83917	-87.920877
OB-65	Oak Brook	10	Wet w/ Extended Dry	Fair			41.831967	-87.993218
OB-66	Oak Brook	10	Wet	Poor			41.834626	-87.955689
OB-67	Oak Brook	10	Wet	Poor			41.833931	-87.954816
OB-68	Oak Brook	10	Wet	Poor			41.834075	-87.953635
OB-69	Oak Brook	10	Wet	Poor		Could not get close access	41.833723	-87.952935
OB-70	Oak Brook	10	Wet	Poor			41.833038	-87.953121
OB-71	Oak Brook	10	Wet	Poor			41.834992	-87.951502
OB-72	Oak Brook	10	Wet	Poor			41.83408	-87.951877
OB-73	Oak Brook	10	Wet	Poor			41.833021	-87.9516
OB-74	Oak Brook	10	Wet	Poor			41.834473	-87.950558
OB-75	Oak Brook	10	Wet	Poor			41.833691	-87.949476



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
OB-76	Oak Brook	10	Wet	Poor			41.834786	-87.94766
OB-77	Oak Brook	3	Unassessed	Unassessed			41.833072	-87.941479
OB-78	Oak Brook	3	Unassessed	Unassessed			41.832945	-87.940513
OB-79	Oak Brook	3	Unassessed	Unassessed			41.833345	-87.938442
OB-80	Oak Brook	3	Wet	Poor			41.835404	-87.932223
OB-81	Oak Brook	3	Wet	Poor			41.835667	-87.921286
OB-82	Oak Brook	3	Wet	Poor			41.834343	-87.922654
OB-83	Oak Brook	10	Wet	Fair			41.831067	-87.989242
OB-84	Oak Brook	10	Wet	Fair			41.831143	-87.988236
OB-85	Oak Brook	10	Wet	Poor	Constructed wetland or add native vegetation		41.831168	-87.987541
OB-86	Oak Brook	10	Wet	Poor	Add Wetland plants		41.828422	-87.993954
OB-87	Oak Brook	10	Wet	Poor		aerator	41.827713	-87.99225
OB-88	Oak Brook	10	Wet	Poor	Add Wetland plants.		41.82754	-87.991623
OB-89	Oak Brook	10	Wet	Poor	Add Wetland plants	Add aerators	41.826959	-87.991699
OB-90	Oak Brook	10	Wet	Fair			41.830569	-87.984907
OB-91	Oak Brook	10	Wet	Fair			41.829117	-87.986223
OB-92	Oak Brook	10	Wet	Fair			41.827994	-87.987234
OB-93	Oak Brook	10	Wet	Fair	Add wetland plants.		41.827573	-87.98605
OB-94	Oak Brook	10	Wet	Fair			41.827053	-87.9858
OB-95	Oak Brook	10	Wet	Fair			41.828777	-87.979906
OB-96	Oak Brook	10	Wet	Fair			41.831092	-87.975111



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
OB-97	Oak Brook	10	Wet	Poor			41.831179	-87.973901
OB-98	Oak Brook	10	Wet	Poor		Algae	41.831215	-87.968734
OB-99	Oak Brook	10	Wet	Fair			41.829491	-87.963858
OT-01	Oakbrk Terr	3	Dry - Naturalized	Fair			41.86402	-87.960554
OT-02	Oakbrk Terr	3	Wet	Fair	Constructed wetland basin.		41.863599	-87.960637
OT-03	Oakbrk Terr	3	Wet	Poor			41.859978	-87.965504
OT-04	Oakbrk Terr	3	Unassessed	Unassessed			41.858983	-87.959405
OT-05	Oakbrk Terr	3	Unassessed	Unassessed			41.856812	-87.961399
OT-06	Oakbrk Terr	9	Wet	Fair	add Wetland buffer		41.851535	-87.989908
OT-07	Oakbrk Terr	9	Wet	Fair			41.850107	-87.987869
OT-08	Oakbrk Terr	9	Wet	Poor	Add wetland plants or aeration.	Clean up trash.	41.852478	-87.976356
OT-09	Oakbrk Terr	9	Wet	Poor	add wetland plants	clean up trash	41.851384	-87.976303
OT-10	Oakbrk Terr	9	Wet	Poor	Add wetland plants.	Clean up trash.	41.851027	-87.975173
OT-11	Oakbrk Terr	9	Wet	Poor	Add wetland plants.		41.850401	-87.975868
OT-12	Oakbrk Terr	9	Constructed Wetland	Good			41.850974	-87.97356
OT-13	Oakbrk Terr	9	Wet	Poor	Add wetland plants.	Stabilize, add aerator	41.850164	-87.97383
OT-14	Oakbrk Terr	9	Wet	Poor	Add wetland plants.	Stabilize.	41.847492	-87.981461
OT-15	Oakbrk Terr	9	Wet	Poor	Add wetland plants		41.848627	-87.96012
OT-16	Oakbrk Terr	10	Unassessed	Unassessed			41.846971	-87.985393
OT-17	Oakbrk Terr	10	Wet	Poor	Add wetland plants.		41.846624	-87.983463

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
RS-01	Roselle	6	Wet	Fair	Estab native veg buffer where absent	Mng invasive veg, stabilize eroding shorelines, remove sediment deposition near outlet	41.993261	-88.082979
RS-02	Roselle	6	"Volunteer" Wetland	Fair	Correct short circuiting, install permeable pavers in parking space row adj to basin	Mng invasive veg, stabilize eroding shorelines	41.995471	-88.074016
RS-03	Roselle	6	Constructed Wetland	Good		Mng invasive veg	41.996615	-88.073465
RS-04	Roselle	6	Dry - Naturalized	Fair	Diversify buffer veg	Mng invasive veg, remove soil dumped on NE upper bank	41.998437	-88.061794
RS-05	Roselle	6	Wet	Poor	Estab native veg buffer (min 5 ft wide)	Mng Canada goose population	41.993938	-88.063173
RS-06	Roselle	6	Wet	Poor	Correct short circuiting	Mng invasive veg	41.99307	-88.063393
RS-07	Roselle	6	Wet	Poor	Establish native veg buffer above rip rap	Mng Canada goose population	41.996154	-88.058131
RS-08	Roselle	6	Wet	Poor	Downspout disconnection, install rain gardens		41.994426	-88.060221
RS-09	Roselle	6	Wet	Poor	Downspout disconnection, install rain gardens		41.994271	-88.059442
RS-10	Roselle	6	Wet	Poor	Estab native veg buffer		41.994102	-88.058708
RS-11	Roselle	6	Wet	Poor	Downspout disconnection, install rain gardens, estab native veg buffer	Mng Canada goose population, repair eroded gully near outlet	41.994121	-88.058052
RS-12	Roselle	6	Wet	Poor	Estab native veg buffer above riprap		41.993559	-88.056777
RS-13	Roselle	6	Dry - Turf	Poor	Naturalize basin		41.992664	-88.057763
RS-14	Roselle	6	Unassessed	Unassessed			41.994088	-88.089735
RS-15	Roselle	6	Unassessed	Unassessed			41.990634	-88.08954

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
RS-16	Roselle	6	Wet	Poor			41.989803	-88.079361
RS-17	Roselle	6	Wet	Good			41.988542	-88.052302
RS-18	Roselle	6	Wet	Poor	add native plants to side slope & Wetland plants	add rip rap to prevent erosion	41.986797	-88.09171
RS-19	Roselle	6	Wet	Fair		remove invasive plants	41.984678	-88.092035
RS-20	Roselle	6	Dry - Naturalized	Fair	Native plantings		41.984963	-88.088722
RS-21	Roselle	6	Dry - Turf	Poor	Native plantings		41.984724	-88.08781
RS-22	Roselle	6	Dry - Turf	Poor	Native plantings	Fix inlet	41.985123	-88.086866
RS-23	Roselle	6	Wet w/ Extended Dry	Good			41.985121	-88.086234
RS-24	Roselle	6	Wet	Poor	Add Wetland plants.	Clean trash from pond.	41.983443	-88.06192
RS-25	Roselle	6	Dry - Turf	Poor	Native plantings		41.981334	-88.076372
RS-26	Roselle	6	Wet	Poor	Add Wetland plants and aeration	Stabilize banks of pond.	41.979514	-88.063194
RS-27	Roselle	6	Unassessed	Unassessed			41.979596	-88.095653
RS-28	Roselle	6	Wet	Fair	native plants/Wetland plants	rip rap in eroded areas	41.978613	-88.091455
RS-29	Roselle	6	Dry - Turf	Poor	Native plantings		41.975313	-88.09149
RS-30	Roselle	6	Dry - Naturalized	Fair	Native plantings side slope		41.976033	-88.078697
RS-31	Roselle	6	Dry - Naturalized	Good			41.974214	-88.078365
RS-32	Roselle	6	Dry - Turf	Poor	Native plantings		41.97628	-88.073625
RS-33	Roselle	6	Dry - Turf	Poor	Native plantings		41.975124	-88.073314
RS-34	Roselle	6	Unassessed	Unassessed			41.970999	-88.092236
RS-35	Roselle	6	Wet	Fair	add rip rap to areas currently w/out		41.971066	-88.078668



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RS-36	Roselle	6	Unassessed	Unassessed			41.972107	-88.052188
RS-37	Roselle	6	Wet	Fair	removal of invasive	trash clean up	41.968672	-88.086686
SB-01	Schaumburg	6	Wet	Poor	Estab native veg buffer & wetland veg shelf, stabilize eroding shorelines	Stabilize eroding shorelines, address sloughing gully on N contrib to sedimentation, mng Canada goose population	42.004798	-88.104926
SB-02	Schaumburg	6	Dry - Turf	Poor	Convert low-flow paths to bioswales, naturalize basin bottom	Mng Canada goose population	42.005342	-88.092644
SB-03	Schaumburg	6	Dry - Turf	Poor	Estab native veg near & around outlet area where water ponds, correct short circuiting		42.005309	-88.086594
SB-04	Schaumburg	6	Dry - Turf	Poor	Naturalize basin bottom, at least around outlet catchbasin, install rain barrels & rain gardens at 2 roof downspouts		42.004725	-88.083411
SB-05	Schaumburg	6	Wet	Poor	Estab native veg buffer, stabilize eroding shorelines, correct short circuiting at N end	Stabilize eroding shorelines	42.00301	-88.087275
SB-06	Schaumburg	6	Wet	Fair	Correct short circuiting at E end	Mng invasive veg, address erosion by outlet pipe at E end	42.00339	-88.091039
SB-07	Schaumburg	6	Dry - Turf	Poor	Naturalize basin bottom, at min around catchbasin		42.002158	-88.104875
SB-08	Schaumburg	6	Unassessed	Unassessed			41.997624	-88.1044
SB-09	Schaumburg	6	Unassessed	Unassessed			41.997793	-88.103211
SB-10	Schaumburg	6	Unassessed	Unassessed			41.997911	-88.100311
SB-11	Schaumburg	6	Unassessed	Unassessed			41.997889	-88.098778
SB-12	Schaumburg	6	Wet w/ Extended Dry	Good	Diversify wetland veg	Mng invasive veg	41.998197	-88.09547



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SB-13	Schaumburg	6	Constructed Wetland	Good	Diversify wetland veg	Mng invasive veg	41.998265	-88.093076
SB-14	Schaumburg	6	Wet	Poor	Expand native veg buffer at least 5 ft	Mng invasive veg, stabilize eroding shorelines	41.996389	-88.092451
SB-15	Schaumburg	6	Constructed Wetland	Good	Diversify wetland veg	Mng invasive veg, ensure short circuiting not occuring	41.99616	-88.102342
SB-16	Schaumburg	6	Constructed Wetland	Good	Diversify wetland veg	Mng invasive veg	41.996093	-88.105718
SB-17	Schaumburg	6	Constructed Wetland	Good	Diversify wetland veg, install permeable pavers in outer parking spaces	Mng invasive veg	41.995948	-88.107557
SB-18	Schaumburg	6	Wet	Fair	Diversify wetland veg	Mng invasive veg	41.991955	-88.09516
SB-19	Schaumburg	6	Dry - Turf	Poor	Naturalize basin, at min around outlet		41.991303	-88.098861
SB-20	Schaumburg	6	Unassessed	Unassessed			41.989529	-88.097591
SB-21	Schaumburg	6	Dry - Turf	Poor	Eliminate short circuiting; naturalize basin bottom or create bioswale	Erosion at north FES inlets	41.98942	-88.093147
SB-22	Schaumburg	6	Constructed Wetland	Good			41.987651	-88.092541
UCC-01	Uninc Cook Co	4	Unassessed	Unassessed			41.864587	-87.91833
UCC-02	Uninc Cook Co	4	Unassessed	Unassessed			41.863488	-87.918702
UCC-03	Uninc Cook Co	4	Dry - Turf	Poor	Correct short circuiting (disconnect swale from outlet catchbasin and meander swale, or convert to infiltration trench), naturalize basin		41.853209	-87.914861
UCC-04	Uninc Cook Co	4	Unassessed	Unassessed			41.850758	-87.912334
UCC-05	Uninc Cook Co	4	Unassessed	Unassessed			41.849907	-87.908395
UCC-06	Uninc Cook Co	4	Unassessed	Unassessed			41.849281	-87.904642



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UCC-07	Uninc Cook Co	4	Unassessed	Unassessed			41.848476	-87.918108
UCC-08	Uninc Cook Co	4	Unassessed	Unassessed			41.847222	-87.918303
UCC-09	Uninc Cook Co	4	Unassessed	Unassessed			41.846644	-87.917734
UCC-10	Uninc Cook Co	4	Unassessed	Unassessed			41.845079	-87.91651
UCC-11	Uninc Cook Co	4	Unassessed	Unassessed			41.843567	-87.917409
UCC-12	Uninc Cook Co	4	Unassessed	Unassessed			41.840681	-87.917705
UCC-13	Uninc Cook Co	4	Unassessed	Unassessed			41.837543	-87.917438
UCC-14	Uninc Cook Co	4	Unassessed	Unassessed			41.834767	-87.910761
UCC-15	Uninc Cook Co	3	Unassessed	Unassessed			41.832608	-87.912217
UCC-16	Uninc Cook Co	3	Unassessed	Unassessed			41.831312	-87.915805
UCC-17	Uninc Cook Co	3	Unassessed	Unassessed			41.818997	-87.915176
UCC-18	Uninc Cook Co	3	Unassessed	Unassessed			41.819122	-87.913727
UDC-01	Uninc DuPg Co	6	Dry - Turf	Poor	native plants		41.982204	-88.054091
UDC-02	Uninc DuPg Co	6	Wet	Poor			41.966185	-88.10098
UDC-03	Uninc DuPg Co	6	Wet	Fair	plant wetland plants on edge of pond to prevent erosion	water seems low	41.962342	-88.102568
UDC-04	Uninc DuPg Co	6	Wet	Poor	native plants, reduce geese	clean outlet area, large erosion	41.968657	-88.067069
UDC-05	Uninc DuPg Co	6	Unassessed	Unassessed			41.960206	-88.061137
UDC-06	Uninc DuPg Co	6	Wet	Good			41.961038	-88.055
UDC-07	Uninc DuPg Co	6	Wet	Fair	more native plants. stilling basins		41.971015	-88.050955
UDC-08	Uninc DuPg Co	6	Wet	Fair	native plants stilling basins		41.969706	-88.049241



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UDC-09	Uninc DuPg Co	6	Wet	Fair	more native plants stilling basins		41.96381	-88.042631
UDC-10	Uninc DuPg Co	6	Wet	Poor	native plants stilling basins forbay		41.961477	-88.045142
UDC-11	Uninc DuPg Co	6	Wet	Fair	aeration and Wetland plants	none	41.964013	-88.039408
UDC-12	Uninc DuPg Co	6	Wet	Good		water color is odd brown	41.963732	-88.036303
UDC-13	Uninc DuPg Co	6	Unassessed	Unassessed			41.956838	-88.049549
UDC-14	Uninc DuPg Co	6	Unassessed	Unassessed			41.956161	-88.049298
UDC-15	Uninc DuPg Co	6	Wet	Poor	Create Wetland basin.	Clean trash and stabilize banks.	41.953516	-88.051159
UDC-16	Uninc DuPg Co	6	Wet	Good			41.952647	-88.041156
UDC-17	Uninc DuPg Co	6	Dry - Turf	Poor	native plants		41.952606	-88.040202
UDC-18	Uninc DuPg Co	6	Dry - Turf	Poor	native plants		41.951614	-88.041524
UDC-19	Uninc DuPg Co	1	Dry - Naturalized	Fair			41.952148	-88.017073
UDC-20	Uninc DuPg Co	1	Wet	Fair	remove invasive species		41.954272	-88.011146
UDC-21	Uninc DuPg Co	1	Wet	Fair	remove invasive plant species		41.953075	-88.009069
UDC-22	Uninc DuPg Co	1	Dry - Naturalized	Fair	remove any invasives		41.959468	-88.004412
UDC-23	Uninc DuPg Co	1	Dry - Naturalized	Fair	remove invasive species		41.958653	-88.003941
UDC-24	Uninc DuPg Co	7	Wet	Poor	native plants sediment forbay stilling basins		41.945342	-88.018632
UDC-25	Uninc DuPg Co	7	Dry - Turf	Poor	native plants	garbage and grass clippings	41.929008	-88.015482
UDC-26	Uninc DuPg Co	7	Wet	Good		desktop review	41.932835	-88.004726
UDC-27	Uninc DuPg Co	7	Dry - Naturalized	Good		dont mow so close to basin	41.906874	-88.006412



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
UDC-28	Uninc DuPg Co	12	Wet w/ Extended Dry	Good			41.941683	-87.963734
UDC-29	Uninc DuPg Co	12	Unassessed	Unassessed			41.933417	-87.96398
UDC-30	Uninc DuPg Co	12	Constructed Wetland	Good	stilling basins		41.945236	-87.950883
UDC-31	Uninc DuPg Co	12	Wet	Poor	native plants		41.945497	-87.94637
UDC-32	Uninc DuPg Co	12	Wet	Poor	native plants, forebay, outlet stilling basin		41.942274	-87.947313
UDC-33	Uninc DuPg Co	12	Wet	Fair	stilling basins, forebay, more native plants		41.940285	-87.951649
UDC-34	Uninc DuPg Co	12	Wet	Poor	Natives plant buffer, stilling basins		41.940012	-87.949027
UDC-35	Uninc DuPg Co	12	Wet	Poor	native plants, stilling basins, forebay		41.938898	-87.949314
UDC-36	Uninc DuPg Co	12	Wet	Poor	Forebay, stilling basins, native plants		41.937798	-87.949521
UDC-37	Uninc DuPg Co	12	Wet	Fair	stilling basins, forebay		41.935881	-87.949313
UDC-38	Uninc DuPg Co	12	Wet	Fair	stilling basins, forebay		41.93612	-87.945806
UDC-39	Uninc DuPg Co	12	Wet	Poor	stilling basins, forebay, native plants		41.935384	-87.94635
UDC-40	Uninc DuPg Co	12	Wet	Poor	native plants, stilling basins		41.938582	-87.930825
UDC-41	Uninc DuPg Co	12	Wet	Poor	native plants, stilling basins		41.93819	-87.927671
UDC-42	Uninc DuPg Co	12	Wet	Poor	native plants, stilling basins		41.938056	-87.926623
UDC-43	Uninc DuPg Co	12	Wet	Poor	native plants, stilling basins		41.934184	-87.930299
UDC-44	Uninc DuPg Co	12	Wet	Poor	native plants		41.934729	-87.929616

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UDC-45	Uninc DuPg Co	12	Wet	Poor	native plants, stilling basins, forebay		41.935011	-87.927518
UDC-46	Uninc DuPg Co	12	Wet	Poor	native plants, stilling basins		41.933055	-87.927797
UDC-47	Uninc DuPg Co	13	Wet	Poor	native plants, stilling basins		41.933822	-87.932821
UDC-48	Uninc DuPg Co	2	Constructed Wetland	Fair			41.923648	-87.967454
UDC-49	Uninc DuPg Co	2	Constructed Wetland	Fair			41.922993	-87.967188
UDC-50	Uninc DuPg Co	2	Dry - Turf	Fair	expand wetland plants		41.920939	-87.96968
UDC-51	Uninc DuPg Co	2	Wet	Fair	stabilization & increase buffer		41.917454	-87.970599
UDC-52	Uninc DuPg Co	8	Dry - Naturalized	Good			41.852474	-88.013011
UDC-53	Uninc DuPg Co	8	Dry - Turf	Poor			41.852775	-88.010944
UDC-54	Uninc DuPg Co	8	Wet	Fair	retrofit slopes and bottom to native vegetation	Maintain invasive species; maintain inlets/outlets- sediment and vegetation are accumulating; York Center Park Dist Maintenance Crew said that the sediment/vegetation at the inlets/outlets get clogged after rain events and cause vast flooding	41.859113	-87.996714
UDC-55	Uninc DuPg Co	8	Dry - Naturalized	Good			41.855616	-87.995867
UDC-56	Uninc DuPg Co	8	Wet	Poor	retrofit slopes and bottom to native vegetation	clear debris and sediment from outlet; remove invasive vegetation near inlet; maintain inlets - grass and algae growing	41.854603	-87.996321
UDC-57	Uninc DuPg Co	8	Dry - Turf	Good	Install native plants		41.864289	-87.989756
UDC-58	Uninc DuPg Co	8	Dry - Turf	Poor	retrofit slopes/bottom to native veg; remove CLC and replace with native veg	sediment/vegetation accumulation at inlet and outlet; clean out garbage	41.86085	-87.98804



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UDC-59	Uninc DuPg Co	9	Wet	Fair	inlet stilling basins more native plants	Don't mow to edge of pond	41.852656	-87.988056
UDC-60	Uninc DuPg Co	9	Wet	Poor	addition of native plants/aquatics		41.849994	-87.985068
UDC-61	Uninc DuPg Co	9	Wet	Poor			41.849608	-87.982436
UDC-62	Uninc DuPg Co	9	Wet	Fair	Add wetland plants.	Stabilization.	41.851903	-87.979966
UDC-63	Uninc DuPg Co	9	Wet	Fair	add natives & aquatics	remove invasives	41.848873	-87.980287
UDC-64	Uninc DuPg Co	3	Dry - Turf	Poor	native plants		41.853851	-87.971317
UDC-65	Uninc DuPg Co	3	Dry - Turf	Fair	More native plants.	Stop mowing basin bottom	41.863037	-87.928321
UDC-66	Uninc DuPg Co	4	Dry - Turf	Poor	Native plants		41.869476	-87.92089
UDC-67	Uninc DuPg Co	10	Wet	Poor	native plant buffer, sediment forebay		41.844747	-87.99099
UDC-68	Uninc DuPg Co	10	Wet	Poor	native plants, sediment forebay, stilling basins		41.84415	-87.990694
UDC-69	Uninc DuPg Co	10	Wet	Poor	addition of native plants		41.833433	-88.000896
UDC-70	Uninc DuPg Co	10	Wet	Good	stilling basins, forebay		41.832591	-87.980187
UDC-71	Uninc DuPg Co	10	Wet	Fair	more native plants, stilling basins		41.834193	-87.980116
UDC-72	Uninc DuPg Co	10	Wet	Good	larger native buffer, stilling basins		41.836519	-87.980255
UDC-73	Uninc DuPg Co	10	Wet	Fair	more native plants, stilling basins		41.837774	-87.977637
UDC-74	Uninc DuPg Co	10	Wet	Poor	native plant buffer		41.835937	-87.979022
UDC-75	Uninc DuPg Co	10	Wet	Poor	native plants, stilling basins, forebay		41.835173	-87.976792
UDC-76	Uninc DuPg Co	10	Wet	Poor	more native plants, stilling basins		41.83608	-87.975145

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
UDC-77	Uninc DuPg Co	10	Wet	Fair	better native plants		41.840611	-87.975943
UDC-78	Uninc DuPg Co	11	Dry - Turf	Poor	native plants, remove riprap channel		41.817042	-87.979841
VP-01	Villa Park	2	Dry - Naturalized	Fair	Possibly retrofit side slopes with more native plants	General maintenance is good	41.91206	-87.971755
VP-02	Villa Park	2	Dry - Turf	Poor	Possibly retrofit side slopes and bottom of basin with native plants	General maintenance is good	41.911308	-87.971359
VP-03	Villa Park	2	Wet	Fair	expand buffer strip		41.910849	-87.968435
VP-04	Villa Park	2	Wet	Good	Possibly add more native plants	General upkeep is good	41.909246	-87.97948
VP-05	Villa Park	2	Wet	Good	Possible addition of more native plants	General upkeep is good	41.909737	-87.977741
VP-06	Villa Park	2	Constructed Wetland	Good	Refurbish whole area or relocation of parking lot	Driveway dangerously close to side slope, some trash in area can contaminate basin	41.909427	-87.970666
VP-07	Villa Park	2	Wet	Fair	Possibly incorporate native plants in surrounding area	Trash is all over, Pond scum is present. Poor maintenance	41.905809	-87.990076
VP-08	Villa Park	2	Dry - Turf	Poor	Possibly incorporate native plants in basin	Normal Upkeep is good	41.906591	-87.988576
VP-09	Villa Park	2	Constructed Wetland	Good	Unsure	General upkeep is good	41.906717	-87.976296
VP-10	Villa Park	2	Dry - Turf	Poor	Possibly retrofit side slopes with native plants	Swale-like basin. General upkeep is good.	41.906625	-87.969893
VP-11	Villa Park	2	Dry - Turf	Poor	Possibly retrofit side slope with native plants	General maintenance is good	41.905152	-87.979225
VP-12	Villa Park	2	Dry - Turf	Fair	Possibly retrofit side slopes with more native plants	Hybrid Underground and Above ground exposed retention	41.905111	-87.976642

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VP-13	Villa Park	2	Dry - Naturalized	Fair	Possibly retrofit side slopes with more native plants	Normal Upkeep is good	41.904264	-87.975928
VP-14	Villa Park	2	Wet	Fair	Add wetland plants and buffer.		41.904549	-87.974998
VP-15	Villa Park	2	Dry - Turf	Poor	Possibly retrofit side slopes with native plants	Hybrid PCBMP and Pipe. Stone trench overflow	41.903408	-87.978271
VP-16	Villa Park	2	Dry - Turf	Poor	Possibly incorporate native plants and retrofit side slopes	1 Normal Linkoon is good		-87.973934
VP-17	Villa Park	2	Dry - Turf	Poor	Possibly incorporate native plants	Normal Upkeep is good	41.902739	-87.982991
VP-18	Villa Park	2	Wet	Poor	Inaccessible to judge	Inaccessible to judge	41.901378	-87.973198
VP-19	Villa Park	2	Dry - Turf	Poor	Possibly incorporate native plants	Normal Upkeep is good	41.900184	-87.969199
VP-20	Villa Park	2	Wet	Poor	Possibly introduce native plants and Fix shoreline	native plants and Normal upkeep is good		-87.994679
VP-21	Villa Park	2	Unassessed	Unassessed			41.89695	-87.974613
VP-22	Villa Park	2	Dry - Turf	Poor	Possibly add more native plants	Normal upkeep is good	41.898028	-87.966601
VP-23	Villa Park	2	Dry - Turf	Poor	Possibly incorporate native plants	Needs minor trash removal. Normal upkeep is good	41.889928	-87.988021
VP-24	Villa Park	2	Dry - Turf	Poor	Additional native plants	Needs maintenance	41.8904	-87.978548
VP-25	Villa Park	2	Dry - Turf	Poor	Possibly incorporate native vegetation	Restrictor and normal upkeep is good	41.890262	-87.973646
VP-26	Villa Park	2	Dry - Turf	Poor	Install BMP	No Comment	41.890388	-87.970365
VP-27	Villa Park	2	Dry - Turf	Poor	Possibly incorporate native plants	Permeable Pavers/Stone and Pond maintenance	41.888568	-87.979272
VP-28	Villa Park	2	Dry - Turf	Poor	Possibly incorporate BMP	RCP Pipe fitted	41.889699	-87.968942
VP-29	Villa Park	2	Dry - Naturalized	Fair	Expand Naturalized Area	No comments	41.888656	-87.968167



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
VP-30	Villa Park	2	Dry - Turf	Poor	Possibly retrofit area with native plants	General maintenance is good	41.886905	-87.971765
VP-31	Villa Park	2	Wet	Fair	Possibly incorporate native plants		41.887545	-87.965741
VP-32	Villa Park	2	Wet	Fair	Possibly add more native vegetation	No comment	41.876858	-87.960943
VP-33	Villa Park	8	Dry - Turf	Poor Possibly introduction of native plants Normal upkeep is good		41.874574	-87.98926	
VP-34	Villa Park	8	Wet	Poor	retrofit slopes and bottom to native vegetation	maintain algae and invasive species; clean sediment from inlet/outlet	41.8739	-87.965924
VP-35	Villa Park	8	Dry - Naturalized	Poor	Possibly add more native vegetation		41.869747	-87.983888
VP-36	Villa Park	8	Wet w/ Extended Dry	Fair	retrofit slopes to native vegetation	clear debris from inlets	41.869952	-87.979291
VP-37	Villa Park	8	Dry - Turf	Poor	retrofit slopes and bottom to native vegetation		41.868418	-87.985903
VP-38	Villa Park	8	Dry - Naturalized	Poor	retrofit slopes and bottom to native vegetation		41.86789	-87.986536
VP-39	Villa Park	8	Dry - Turf	Poor	Retrofit with native vegetation	Normal Upkeep is good	41.867846	-87.972256
VP-40	Villa Park	8	Wet	Poor	Possibly introduction of native plants	Minor Trash removal needed	41.870135	-87.967211
VP-41	Villa Park	8	Wet	Fair		Some erosion on banks of basin. Appears not much water movement	41.870978	-87.962784
VP-42	Villa Park	8	Dry - Turf	Poor	Possibly incorporate native plants	No comment	41.869672	-87.966349
VP-43	Villa Park	8	Dry - Turf	Poor	retrofit slopes to native vegetation		41.865717	-87.985817
VP-44	Villa Park	8	Wet w/ Extended Dry	Fair	Possibly incorporate native plants	Normal Upkeep is good	41.864729	-87.979451
VP-45	Villa Park	8	Dry - Turf	Poor	retrofit slopes and bottom to native vegetation		41.8637	-87.977522



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
VP-46	Villa Park	8	Dry - Turf	Poor	Possibly investing in native plants	Normal Upkeep is good	41.863659	-87.974684
VP-47	Villa Park	8	Wet w/ Extended Dry	Poor	Constructed wetland basin.	tland basin.		-87.979108
VP-48	Villa Park	8	Dry - Turf	Poor	or retrofit slopes and bottom to native vegetation		41.861453	-87.978618
VP-49	Villa Park	8	Dry - Naturalized	Good	Possibly more native plants	Clean out trash	41.859748	-87.981169
VP-50	Villa Park	8	Dry - Turf	Poor	Incorporate Native plants	De-Weed area when possible	41.859785	-87.980836
VP-51	Villa Park	3	Dry - Naturalized	Fair	Rid of invasive plants	Some trash in area	41.860857	-87.974394
VP-52	Villa Park	3	Dry - Naturalized	Fair	Plant more native plants if possible	No comment	41.861133	-87.973531
VP-53	Villa Park	3	Dry - Naturalized	Fair	Possibly incorporate more native plants	None	41.861672	-87.972084
VP-54	Villa Park	3	Constructed Wetland	Fair	Eliminate Invasive Plants if possible	No comment	41.861532	-87.971096
VP-55	Villa Park	3	Dry - Turf	Poor	If Native Plants could survive, the condition might improve	Horrible; Trash everywhere and looks dangerous	41.861377	-87.969035
VP-56	Villa Park	3	Dry - Turf	Poor	Incorporate Native Plants	Normal upkeep needed	41.861498	-87.965437
VP-57	Villa Park	7	Dry - Turf	Poor	Possibly retrofit side slopes with native plants	General maintenance is good	41.905383	-88.002605
WC-01	Westchester	14	"Volunteer" Wetland	Fair	Diversify wetland veg	Mng invasive veg	41.856977	-87.884491
WC-02	Westchester	14	"Volunteer" Wetland	Fair	Naturalize turf area, diversify wetland veg	Mng invasive veg	41.859071	-87.88656
WC-03	Westchester	14	Dry - Turf	Poor	Convert to infiltration basin		41.863864	-87.87836
WC-04	Westchester	4	Wet	Poor	Estab wetland shelf, estab native veg buffer, correct short circuiting	Stabilize eroding shorelines	41.846521	-87.901859
WC-05	Westchester	4	Wet	Poor	Estab wetland shelf, estab native veg buffer	Stabilize eroding shorelines	41.844782	-87.901672

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
WC-06	Westchester	4	"Volunteer" Wetland	Fair	Estab native veg buffer, diversify wetland veg, correct short circuiting	Mng invasive veg, repair broken pipe at outlet, address high sedimentation	41.847689	-87.908325
WC-07	Westchester	4	Wet	Fair	Expand buffer ~5 ft, correct short circuiting	Mng inv veg, address erosion around W inlet	41.847082	-87.909653
WC-08	Westchester	4	Wet	Poor	Estab native veg buffer		41.840953	-87.908422
WC-09	Westchester	4	Wet	Poor	Downspout disconnection Address sloughing above rip rap		41.839499	-87.909163
WC-10	Westchester	4	Wet	Poor			41.839011	-87.909269
WC-11	Westchester	4	Wet	Poor	Downspout disconnection	1		-87.903571
WC-12	Westchester	4	Wet	Fair	Estab native veg buffer	Clean out clogged catch basins	41.842641	-87.901678
WC-13	Westchester	4	Unassessed	Unassessed			41.842668	-87.908769
WC-14	Westchester	4	Unassessed	Unassessed			41.838453	-87.909794
WC-15	Westchester	4	Unassessed	Unassessed			41.833928	-87.906527
WC-16	Westchester	4	Constructed Wetland	Good		Phragmites control	41.837816	-87.893384
WD-01	Wood Dale	1	Unassessed	Unassessed			41.991969	-87.991932
WD-02	Wood Dale	1	Wet	Fair			41.990561	-87.981586
WD-03	Wood Dale	1	Unassessed	Unassessed			41.988	-87.988903
WD-04	Wood Dale	1	Unassessed	Unassessed			41.988751	-87.986143
WD-05	Wood Dale	1	Unassessed	Unassessed			41.985155	-87.997772
WD-06	Wood Dale	1	Unassessed	Unassessed			41.985228	-87.994584
WD-07	Wood Dale	1	Unassessed	Unassessed			41.984106	-87.995033
WD-08	Wood Dale	1	Wet	Poor	remove riprap, add vegetation		41.985567	-87.987225
WD-09	Wood Dale	1	Dry - Turf	Poor	convert to naturalized dry basin		41.98177	-87.986809



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
WD-10	Wood Dale	1	Wet	Poor	replace riprap with native veg		41.981118	-87.987314
WD-11	Wood Dale	1	Dry - Turf	Poor	naturalize basin		41.978278	-87.987328
WD-12	Wood Dale	1	Dry - Naturalized	Fair			41.978705	-87.986932
WD-13	Wood Dale	1	Dry - Turf	Poor	retrofit to native basin		41.979546	-87.98524
WD-14	Wood Dale	1	Dry - Turf	Poor	retrofit to native basin		41.979191	-87.984677
WD-15	Wood Dale	1	Dry - Naturalized	Fair	expand native plants to slopes		41.979004	-87.983023
WD-16	Wood Dale	1	Dry - Turf	Poor			41.976015	-87.982699
WD-17	Wood Dale	1	Dry - Turf	Poor	naturalize basin		41.968183	-87.982973
WD-18	Wood Dale	1	Dry - Turf	Poor	naturalize basin		41.968844	-87.980953
WD-19	Wood Dale	1	Wet	Fair	expand buffer on west side, eliminating turfgrass		41.966633	-87.989549
WD-20	Wood Dale	1	Dry - Turf	Poor	naturalize basin		41.965769	-87.981768
WD-21	Wood Dale	1	Dry - Turf	Poor	convert to naturalized basin		41.964007	-87.994769
WD-22	Wood Dale	1	Dry - Turf	Poor	convert to naturalized basin		41.960905	-87.980154
WD-23	Wood Dale	1	Dry - Turf	Poor	convert to naturalized dry basin		41.961396	-87.978582
WD-24	Wood Dale	1	Dry - Turf	Poor	convert to naturalized dry basin		41.962351	-87.976379
WD-24	Wood Dale	1	Wet	Poor			41.95956	-87.997357
WD-26	Wood Dale	1	Wet	Poor	add vegetation and/or convert to wetland		41.958752	-87.9954
WD-27	Wood Dale	1	Dry - Turf	Poor			41.956216	-87.990002
WD-28	Wood Dale	1	Dry - Turf	Poor			41.952653	-87.989651
WD-29	Wood Dale	1	Wet w/ Extended Dry	Good			41.952797	-87.977499



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
WD-30	Wood Dale	1	Wet w/ Extended Dry	Good			41.952258	-87.977236
WD-31	Wood Dale	12	Dry - Turf	Poor	add native plants, naturalize basin		41.953233	-87.970508
WD-32	Wood Dale	12	Dry - Turf	Poor			41.952776	-87.967273
WD-33	Wood Dale	12	Dry - Naturalized	ry - Naturalized Good Inlet bell separated from pipe		41.952398	-87.96723	
WD-34	Wood Dale	12	Wet	Poor add buffer strips		41.948727	-87.962211	
WD-35	Wood Dale	12	Wet	et Poor add buffer strip		41.947032	-87.961755	
WD-36	Wood Dale	12	Dry - Turf	Turf Poor		41.945668	-87.96668	
WD-37	Wood Dale	12	Dry - Turf	Poor			41.946417	-87.96586
WD-38	Wood Dale	1	Unassessed	Unassessed			41.974116	-87.989501
WM-01	Westmont	10	Wet	Fair	Add wetland plants	Cleanup debris	41.822439	-87.980372
WM-02	Westmont	10	Wet	Poor	Add wetland plants.		41.824022	-87.972279
WM-03	Westmont	10	Wet	Poor	add wetland plants		41.82345	-87.967271
WM-04	Westmont	10	Wet	Poor	Add wetland plants		41.823276	-87.963853
WM-05	Westmont	10	Wet	Poor	add wetland plants		41.823333	-87.96337
WM-06	Westmont	10	Wet	Poor	add wetland plants		41.823355	-87.96282
WM-07	Westmont	10	Wet	Fair	Add additional wetland plants	add aeration	41.823349	-87.962305
WM-08	Westmont	10	Wet	Poor	Add wetland plants		41.824506	-87.96303
WM-09	Westmont	10	Wet	Fair	add wetland plants		41.823999	-87.962264
WM-10	Westmont	10	Wet	Poor	Add wetland plants Stabilize banks, add aeration		41.824433	-87.961377
WM-11	Westmont	10	Wet	Fair		Add aerator	41.824569	-87.955177
WM-12	Westmont	11	Unassessed	Unassessed			41.818532	-87.976653

Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
WM-13	Westmont	11	Unassessed	Unassessed			41.818085	-87.976599
WM-14	Westmont	11	Unassessed	Unassessed			41.820819	-87.975254
WM-15	Westmont	11	Unassessed	Unassessed			41.820901	-87.97464
WM-16	Westmont	11	Unassessed	Unassessed			41.819394	-87.97472
WM-17	Westmont	11	Unassessed	Unassessed			41.818555	-87.974821
WM-18	Westmont	11	Unassessed	Unassessed			41.820477	-87.972876
WM-19	Westmont	11	Unassessed	Unassessed			41.82213	-87.969825
WM-20	Westmont	11	Unassessed	Unassessed			41.820347	-87.969031
WM-21	Westmont	11	Wet	Poor	Add wetland plants	Add aeration	41.818639	-87.967256
WM-22	Westmont	11	Unassessed	Unassessed			41.819257	-87.96425
WM-23	Westmont	11	Wet	Poor	Add wetland plants		41.821443	-87.95641
WM-24	Westmont	11	Wet	Fair	Add wetland plants	Stabilize banks	41.821641	-87.954292
WM-25	Westmont	11	Wet	Fair		area fenced off	41.818353	-87.957881
WM-26	Westmont	11	Wet	Fair	Add wetland plants.		41.817626	-87.953438
WM-27	Westmont	11	Dry - Turf	Poor	native plants		41.815111	-87.977107
WM-28	Westmont	11	Unassessed	Unassessed			41.815987	-87.972868
WM-29	Westmont	11	Wet	Poor			41.816762	-87.970728
WM-30	Westmont	11	Wet	Good			41.817317	-87.96928
WM-31	Westmont	11	Wet	Fair			41.816024	-87.968764
WM-32	Westmont	11	Unassessed	Unassessed			41.814398	-87.975685
WM-33	Westmont	11	Unassessed	Unassessed			41.813909	-87.972312



Basin Code	Political Jurisdiction	Subshd #	Basin Type	WQ Benefit	Retrofit Opportunities	Maintenance Needs	Latitude	Longitude
WM-34	Westmont	11	Unassessed	Unassessed			41.813643	-87.971601
WM-35	Westmont	11	Unassessed	Unassessed			41.812474	-87.97084
WM-36	Westmont	11	Wet	Fair	Add additional wetland plants		41.813303	-87.968611
WM-37	Westmont	11	Wet	Poor			41.815183	-87.957337
WM-38	Westmont	11	Unassessed	Unassessed			41.813159	-87.959276
WM-39	Westmont	11	Dry - Naturalized	Poor	replant slopes	mowed vegetation, severe erosion	41.811769	-87.951085
WM-40	Westmont	11	Dry - Naturalized	Good			41.811528	-87.94806
WM-41	Westmont	11	Wet	Poor	Add wetland plants.	Stabilization required, add aerator	41.807255	-87.975447
WS-01	Western Springs	3	Unassessed	Unassessed			41.81803	-87.913203



Appendix C – Lake Charles and Swan Lake Riparian Buffer and Shoreline Erosion Assessment Data



Segment Code	Land Use	Ownership	Riparian Buffer Condition	Shoreline Erosion Level	Shoreline Length (ft)
01	Open Space	Organizational	Poor	Minimal	387
02	Residential	Private	Poor	None	74
03	Residential	Private	Poor	None	20
04	Residential	Private	Poor	None	90
05	Residential	Private	Poor	None	70
06	Residential	Private	Poor	None	76
07	Residential	Private	Poor	None	15
08	Residential	Private	Poor	None	56
09	Residential	Private	Poor	Slight	81
10	Residential	Private	Poor	Slight	102
11	Residential	Private	Poor	None	157
12	Residential	Private	Poor	None	154
13	Residential	Private	Poor	None	146
14	Residential	Private	Good	Moderate	133
15	Residential	Private	Poor	Moderate	10
16	Residential	Private	Poor	None	14
17	Residential	Private	Poor	None	32
18	Residential	Private	Poor	None	89
19	Residential	Private	Poor	None	88
20	Residential	Private	Poor	None	77
21	Residential	Private	Poor	Minimal	70
22	Residential	Private	Poor	Slight	71
23	Residential	Private	Poor	None	62
24	Residential	Private	Poor	Moderate	53
25	Residential	Private	Poor	Minimal	61
26	Residential	Private	Poor	None	99
27	Residential	Private	Poor	None	70
28	Residential	Private	Poor	None	89
29	Residential	Private	Poor	Slight	73
30	Residential	Private	Poor	Slight	53
31	Residential	Private	Poor	None	100
32	Residential	Private	Poor	Minimal	124
33	Residential	Private	Poor	None	98
34	Residential	Private	Poor	High	176
35	Residential	Private	Poor	None	58
36	Residential	Private	Poor	None	115
37	Residential	Private	Poor	High	175
38	Residential	Private	Poor	None	158
39	Residential	Private	Poor	None	106
40	Open Space	Organizational	Good	Slight	472
41	Open Space	Organizational	Good	Slight	185
42	Residential	Private	Poor	None	59
43	Residential	Private	Poor	None	33
				Total:	4,432

 Table C-1. Lake Charles riparian buffer and shoreline erosion assessment data.



Segment Code	Land Use	Ownership	Riparian Buffer Condition	Shoreline Erosion Level	Shoreline Length (ft)
01	Open Space	Public	Poor	Minimal	36.7
02	Open Space	Public	Poor	Moderate	19.7
03	Open Space	Public	Poor	Slight	21.4
04	Open Space	Public	Poor	High	32.7
05	Open Space	Public	Fair	Moderate	8.1
06	Open Space	Public	Good	High	28.0
07	Open Space	Public	Very Good	Moderate	10.3
08	Open Space	Public	Very Good	High	45.5
09	Open Space	Public	Very Good	Slight	16.1
10	Open Space	Public	Very Good	Moderate	5.8
11	Open Space	Public	Very Good	High	10.7
12	Open Space	Public	Very Good	Moderate	35.4
13	Open Space	Public	Very Good	Slight	279.8
14	Open Space	Public	Very Good	Minimal	29.5
15	Open Space	Public	Very Good	High	15.7
16	Open Space	Public	Very Good	Slight	25.6
17	Open Space	Public	Very Good	Moderate	13.9
18	Open Space	Public	Good	High	62.7
19	Open Space	Public	Very Good	Moderate	78.3
20	Open Space	Public	Good	Minimal	135.4
21	Open Space	Public	Good	Minimal	24.4
22	Open Space	Public	Fair	Slight	42.6
23	Open Space	Public	Poor	Moderate	72.6
24	Open Space	Public	Very Good	High	35.4
25	Open Space	Public	Very Good	Minimal	21.9
26	Open Space	Public	Very Good	Moderate	9.3
27	Open Space	Public	Very Good	High	72.5
28	Open Space	Public	Very Good	Moderate	28.3
29	Open Space	Public	Very Good	Minimal	54.5
30	Open Space	Public	Very Good	Slight	19.2
31	Open Space	Public	Very Good	Moderate	43.2
32	Open Space	Public	Very Good	High	121.9
33	Open Space	Public	Very Good	Moderate	3.3
34	Open Space	Public	Very Good	High	17.3
35	Open Space	Public	Very Good	Slight	6.6
36	Open Space	Public	Very Good	Minimal	72.3
37	Open Space	Public	Very Good	Slight	10.4
38	Open Space	Public	Good	Minimal	81.5
39	Open Space	Public	Very Good	Slight	17.1
40	Open Space	Public	Very Good	Moderate	21.3
41	Open Space	Public	Very Good	High	30.0
42	Open Space	Public	Very Good	Moderate	103.8
43	Open Space	Public	Fair	Slight	37.7
44	Open Space	Public	Fair	Minimal	46.7

 Table C-2. Swan Lake riparian buffer and shoreline erosion assessment data.



Segment Code	Land Use	Ownership	Riparian Buffer Condition	Shoreline Erosion Level	Shoreline Length (ft)
45	Open Space	Public	Fair	High	64.8
46	Open Space	Public	Poor	Minimal	65.0
47	Open Space	Public	Very Good	Minimal	371.8
48	Open Space	Public	Very Good	Slight	35.8
49	Open Space	Public	Poor	High	177.8
50	Open Space	Public	Very Good	Slight	23.9
51	Open Space	Public	Very Good	Minimal	23.7
52	Open Space	Public	Very Good	Moderate	30.0
53	Open Space	Public	Very Good	High	23.9
54	Open Space	Public	Very Good	Moderate	22.6
55	Open Space	Public	Very Good	Minimal	24.6
56	Open Space	Public	Very Good	Moderate	32.9
57	Open Space	Public	Very Good	Minimal	33.1
				Total:	2,835.0



Appendix D – Comprehensive Plan Checklist and Assessment





Table D-1. Comprehensive plan checklist and assessment of municipal and county comprehensive plans in the Lower Salt Creek watershed planning area.

Doe	s the plan	Addison	Bellwood	Bensenville	Berkley	Bloomingdale	Broadview	Brookfield	Clarendon Hls	Downers Grv	Elmhurst	Franklin Park	Itasca	La Grange	La Grange Pk	Lombard	Lyons	Maywood	Melrose Park	Northlake	Oak Brook	Oakbrk Terr
Natı	iral Resources																					
1	identify and map critical natural resource areas? (if yes, what? e.g., steep slopes, wildlife habitat, forests, drinking water source areas)	2	1	2	2	1	0	1	1	2	2	1	2	1	1	2	2	2	1	2	1	1
2	contain a natural resource protection element with goals calling for preservation of identified critical natural resource areas?	1	0	2	2	1	0	2	1	2	2	2	2	1	1	1	2	2	2	2	2	1
3	identify key natural resource areas for protection in jurisdiction's parks and open space plan?	1	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2	0	2	0	0
4	establish and enforce areas which are available for development and which lands are a priority for preservation?	1	1	1	2	1	0	0	1	2	2	2	2	2	2	2	2	0	2	2	2	0
Wat	Water Resources																					
5	map and identify critical water resource areas?	0	0	1	0	0	0	1	0	2	2	2	2	0	0	1	2	2	1	2	1	1



Does	s the plan	Addison	Bellwood	Bensenville	Berkley	Bloomingdale	Broadview	Brookfield	Clarendon Hls	Downers Grv	Elmhurst	Franklin Park	Itasca	La Grange	La Grange Pk	Lombard	Lyons	Maywood	Melrose Park	Northlake	Oak Brook	Oakbrk Terr
6	contain a water quality protection element with goals calling for protection of identified water bodies and other water resource areas such as wetlands?	0	0	0	0	1	0	0	1	2	2	2	2	0	0	1	0	2	2	2	2	0
7	identify key critical water resource areas for protection in jurisdiction's parks and open space plan?	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	2	0	2	0	0
8	outline protection measures for source water protection areas through land use controls and stewardship activities?	0	0	0	0	0	0	0	0	2	2	2	2	0	0	2	0	0	2	2	1	0
9	identify and map aquifer recharge/source water areas and/or wellheads and recommend protective measures?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ope	n Space																					
10	identify adequate open space in both developed and greenfield areas of the community?	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2



Doe	s the plan	Addison	Bellwood	Bensenville	Berkley	Bloomingdale	Broadview	Brookfield	Clarendon Hls	Downers Grv	Elmhurst	Franklin Park	Itasca	La Grange	La Grange Pk	Lombard	Lyons	Maywood	Melrose Park	Northlake	Oak Brook	Oakbrk Terr
11	contain an open space/parks element that recognizes the role of open space in sustainable stormwater management?	2	2	2	2	0	0	0	2	0	0	2	2	0	0	2	2	1	2	2	2	0
Tree	25																					
12	include tree preservation and replacement as community goals?	0	0	2	1	2	0	0	1	2	1	0	0	2	0	0	0	2	0	0	2	0
13	support the planting of street trees by all private and public development projects?	0	1	1	2	2	0	1	2	0	1	1	0	2	0	2	0	0	0	0	2	2
Dev	elopment Type and Location																					
14	direct development to previously developed areas?	0	1	0	2	2	2	0	1	1	2	2	0	0	2	2	2	0	2	2	2	1
15	identify potential brownfield and greyfield sites and support their redevelopment?	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0
16	direct growth to areas with existing infrastructure, such as sewer, water, and roads?	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
17	Are mixed-use and transit- oriented developments allowed or encouraged?	2	2	2	2	0	2	2	2	2	2	1	2	2	0	2	2	2	0	2	0	0



Doe	s the plan	Addison	Bellwood	Bensenville	Berkley	Bloomingdale	Broadview	Brookfield	Clarendon Hls	Downers Grv	Elmhurst	Franklin Park	Itasca	La Grange	La Grange Pk	Lombard	Lyons	Maywood	Melrose Park	Northlake	Oak Brook	Oakbrk Terr
18	identify appropriate areas for higher-density mixed- use developments (e.g., at transit stops) and recommend policies to encourage their development?	2	2	2	2	0	2	0	2	2	2	2	2	2	0	2	2	2	0	2	0	0
Tran	sportation / Parking																					
19	emphasize alternative modes of transportation (walking, biking, and transit) to reduce vehicle miles traveled and width and prominence of roads/streets?	2	2	2	2	2	1	2	0	2	2	2	1	2	2	2	2	2	2	2	2	2
20	call for distributing traffic across several parallel streets, reducing the need for high capacity streets with wide rights-of-way?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	include or recommend the creation of a formal bicycle/pedestrian master plan?	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0



Doe	s the plan	Addison	Bellwood	Bensenville	Berkley	Bloomingdale	Broadview	Brookfield	Clarendon Hls	Downers Grv	Elmhurst	Franklin Park	Itasca	La Grange	La Grange Pk	Lombard	Lyons	Maywood	Melrose Park	Northlake	Oak Brook	Oakbrk Terr
22	recommend supporting "safe routes to school" programs or other pedestrian/bike safety initiatives?	1	0	2	2	0	0	0	0	2	2	2	2	0	0	2	1	2	0	0	1	0
23	recommend improvements to walking/biking conditions?	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
24	promote green infrastructure practices in street design?	2	0	2	2	2	0	0	2	1	2	2	0	0	0	0	1	2	1	0	0	0
25	recognize the advantages to reduced parking requirements generally and specifically for mixed-use and transit-oriented developments?	0	0	0	2	2	0	2	0	2	2	2	1	2	0	0	2	2	0	0	0	1
26	recommend alternative, flexible approaches to meeting parking demands (e.g., shared parking, counting on-street spaces towards site parking requirements)?	0	0	2	2	2	2	1	0	2	2	1	1	2	0	0	2	2	0	2	0	2

Does	s the plan	Addison	Bellwood	Bensenville	Berkley	Bloomingdale	Broadview	Brookfield	Clarendon Hls	Downers Grv	Elmhurst	Franklin Park	Itasca	La Grange	La Grange Pk	Lombard	Lyons	Maywood	Melrose Park	Northlake	Oak Brook	Oakbrk Terr
27	recommend provision of bicycle parking spaces/storage lockers and concomitant reduction in vehicle parking space requirements?	0	0	0	2	2	0	2	0	1	2	2	2	2	2	2	2	2	0	0	0	2
28	recognize transportation demand management as an approach to reducing vehicle miles traveled and parking requirements?	0	0	2	2	2	1	2	0	2	2	1	2?	2	1	2	2	2	2	2	1	2
29	call for landscaping in parking lots to help reduce stormwater runoff?	1	0	2	2	1	0	0	0	2	2	2	0	0	0	0	1	2	1	2	0	1
TO	TAL SCORE (58 max points)	23	15	33	38	26	12	20	20	37	42	43	29	26	15	34	35	41	24	36	27	20



Table D-1. Comprehensive plan checklist and assessment of municipal and county comprehensive plans in the Lower Salt Creek watershed planning area (*continued*).

Do	es the plan	Roselle	Schaumburg	Villa Park	Westchester	Western Sprgs	Westmont	Wood Dale	Cook Co.	DuPage Co.	Elk Grove Vlg	Hillside	Hinsdale	N. Riverside	Stone Park	Max Points	Average	% Yes	% Partial	% No
Na	tural Resources																			
1	identify and map critical natural resource areas? (if yes, what? e.g., steep slopes, wildlife habitat, forests, drinking water source areas)	2	2	2	2	1	2	2	2	0	-	-	-	-	-	2	1.54	56.7%	36.7%	6.7%
2	contain a natural resource protection element with goals calling for preservation of identified critical natural resource areas?	2	2	2	2	0	2	2	2	1	-	-	-	-	_	2	1.54	63.3%	26.7%	10.0%
3	identify key natural resource areas for protection in jurisdiction's parks and open space plan?	0	0	0	2	0	0	0	2	0	-	-	-	-	-	2	0.39	20.0%	3.3%	76.7%
4	establish and enforce areas which are available for development and which lands are a priority for preservation?	2	2	2	2	0	2	1	1	1	-	-	-	-	-	2	1.43	56.7%	26.7%	16.7%
Wa	ter Resources																			
5	map and identify critical water resource areas?	2	2	1	2	0	2	1	2	0	-	-	-	-	-	2	1.07	40.0%	26.7%	33.3%

Do	es the plan	Roselle	Schaumburg	Villa Park	Westchester	Western Sprgs	Westmont	Wood Dale	Cook Co.	DuPage Co.	Elk Grove Vlg	Hillside	Hinsdale	N. Riverside	Stone Park	Max Points	Average	% Yes	% Partial	% No
6	contain a water quality protection element with goals calling for protection of identified water bodies and other water resource areas such as wetlands?	2	2	1	2	0	2	1	2	0	-	-	_	_	_	2	1.04	43.3%	16.7%	40.0%
7	identify key critical water resource areas for protection in jurisdiction's parks and open space plan?	0	0	0	2	0	0	0	2	0	-	-	-	-	-	2	0.32	16.7%	3.3%	80.0%
8	outline protection measures for source water protection areas through land use controls and stewardship activities?	0	2	1	2	0	2	0	2	0	-	-	-	-	-	2	0.79	36.7%	6.7%	56.7%
9	identify and map aquifer recharge/source water areas and/or wellheads and recommend protective measures?	0	0	0	0	0	0	0	0	0	-	-	-	-	-	2	0.00	0.0%	0.0%	100.0%
Op	en Space																			
10	identify adequate open space in both developed and greenfield areas of the community?	2	2	2	2	2	2	2	0	2	-	-	-	-	-	2	1.93	90.0%	6.7%	3.3%

Doe	es the plan	Roselle	Schaumburg	Villa Park	Westchester	Western Sprgs	Westmont	Wood Dale	Cook Co.	DuPage Co.	Elk Grove Vlg	Hillside	Hinsdale	N. Riverside	Stone Park	Max Points	Average	% Yes	% Partial	% No
11	contain an open space/parks element that recognizes the role of open space in sustainable stormwater management?	2	1	0	1	0	0	0	2	0	_	-	_	-	-	2	1.04	46.7%	10.0%	43.3%
Tre	es																			
12	include tree preservation and replacement as community goals?	0	2	0	0	0	2	2	2	0	-	-	-	-	-	2	0.75	33.3%	10.0%	56.7%
13	support the planting of street trees by all private and public development projects?	0	0	2	0	0	1	2	0	0	-	-	-	-	-	2	0.86	30.0%	20.0%	50.0%
Dev	velopment Type and Location																			
14	direct development to previously developed areas?	2	2	1	1	2	1	1	2	0	-	-	-	-	-	2	1.29	50.0%	26.7%	23.3%
15	identify potential brownfield and greyfield sites and support their redevelopment?	0	1	0	0	0	0	0	0	0						2	0.21	6.7%	6.7%	86.7%
16	direct growth to areas with existing infrastructure, such as sewer, water, and roads?	0	0	0	0	0	0	0	2	1	-	-	-	-	-	2	0.14	10.0%	3.3%	86.7%
17	Are mixed-use and transit- oriented developments allowed or encouraged?	2	2	2	2	2	2	2	2	0	-	-	-	-	-	2	1.61	76.7%	3.3%	20.0%

Doe	es the plan	Roselle	Schaumburg	Villa Park	Westchester	Western Sprgs	Westmont	Wood Dale	Cook Co.	DuPage Co.	Elk Grove Vlg	Hillside	Hinsdale	North Riverside	Stone Park	Max Points	Average	% Yes	% Partial	% No
18	identify appropriate areas for higher-density mixed-use developments (e.g., at transit stops) and recommend policies to encourage their development?	2	2	2	2	2	2	2	2	0	-	_	_	-	_	2	1.57	76.7%	0.0%	23.3%
Tra	nsportation / Parking																			
19	emphasize alternative modes of transportation (walking, biking, and transit) to reduce vehicle miles traveled and width and prominence of roads/streets?	2	2	2	2	2	2	2	2	0	_	_	-	_	_	2	1.86	86.7%	6.7%	6.7%
20	call for distributing traffic across several parallel streets, reducing the need for high capacity streets with wide rights-of-way?	0	0	0	0	0	0	0	0	0	-	-	-	_	-	2	0.00	0.0%	0.0%	100.0%
21	include or recommend the creation of a formal bicycle/pedestrian master plan?	0	2	0	2	0	2	0	0	0	-	-	_	-	-	2	0.43	20.0%	0.0%	80.0%
22	recommend supporting "safe routes to school" programs or other pedestrian/bike safety initiatives?	0	0	2	2	2	2	0	0	0	-	-	-	-	-	2	0.96	40.0%	10.0%	50.0%
23	recommend improvements to walking/biking conditions?	2	2	2	2	2	2	2	2	0	-	-	-	-	-	2	1.93	93.3%	0.0%	6.7%



Do	es the plan	Roselle	Schaumburg	Villa Park	Westchester	Western Sprgs	Westmont	Wood Dale	Cook Co.	DuPage Co.	Elk Grove Vlg	Hillside	Hinsdale	N. Riverside	Stone Park	Max Points	Average	% Yes	% Partial	% No
24	promote green infrastructure practices in street design?	1	0	0	1	0	2	0	2	0	-	-	-	-	-	2	0.82	33.3%	16.7%	50.0%
25	recognize the advantages to reduced parking requirements generally and specifically for mixed-use and transit- oriented developments?	0	0	2	2	0	2	0	0	0	-	-	-	_	-	2	0.93	40.0%	6.7%	53.3%
26	recommend alternative, flexible approaches to meeting parking demands (e.g., shared parking, counting on-street spaces towards site parking requirements)?	0	0	2	2	2	2	0	0	0	_	-	_	_	_	2	1.18	50.0%	10.0%	40.0%
27	recommend provision of bicycle parking spaces/storage lockers and concomitant reduction in vehicle parking space requirements?	0	2	2	2	2	2	0	0	0	-	-	-	-	-	2	1.25	56.7%	3.3%	40.0%
28	recognize transportation demand management as an approach to reducing vehicle miles traveled and parking requirements?	2	2	1	2	0	2	1	2	0	-	-	-	-	-	2	1.48	60.0%	20.0%	16.7%
29	call for landscaping in parking lots to help reduce stormwater runoff?	1	1	2	2	0	2	0	0	0	-	-	-	-	-	2	0.96	33.3%	23.3%	43.3%
тс	TAL SCORE (58 max points)	28	35	33	43	19	42	23	35	5	0	0	0	0	0	58				



Appendix E – Greenest Region Compact Environmental Achievements, 2007-2014





							Sustainab	oility Steward	lship - 1	3 elements	6			
Political Jurisdiction	Total Elements	Enviro- focused citizen cmmsn	Park Dist Model Enviro Policy	Sustain- ability Plan	Climate Action Plan	GRC 1 adop- ter	2009-2013 Governor's Sustain- ability Award	2009-2013 Governor's Sustain- ability Continuous Improve- ment Award	LEED AP on staff	Municipal LEED certified buildings	LEED require- ment/ incentives	2011 Sustainable Community Challenge recipient	2010-2011 Sustainable Community Challenge applicant	Green Initiatives website
Addison	12		1			1								
Bellwood	6											1		
Bensenville	11	1								1				
Berkeley	2													
Bloomingdale	10					1				1				
Broadview	4													
Brookfield	14	1				1								
Clarendon Hls	6													
Cook Co	12								1		1			
Downers Grv	15	1					1						1	
DuPage Co	11													
Elk Grove Vlg	13									1				
Elmhurst	25		1	1	<u> </u>		1	1		1				1



							Sustainab	ility Steward	ship - 1	3 elements				
Political Jurisdiction	Total Elements Addressed	Enviro- focused citizen cmmsn	Park Dist Model Enviro Policy	Sustain- ability Plan	Climate Action Plan	GRC 1 adop- ter	2009-2013 Governor's Sustain- ability Award	2009-2013 Governor's Sustain- ability Continuous Improve- ment Award	LEED AP on staff	Municipal LEED certified buildings	LEED require- ment/ incentives	2011 Sustainable Community Challenge recipient	2010-2011 Sustainable Community Challenge applicant	Green Initiatives website
Franklin Park	10	1								1				
Hillside	4													
Hinsdale	10	1				1								
Itasca	8					1								
La Grange	12	1												
La Grange Pk	14			1		1								
Lombard	16	1		1		1								
Lyons	7													
Maywood	7											1		
Melrose Park	7													
N Riverside	4													
Northlake	4					1							1	
Oak Brook	9					1					1			
Oakbrook Terr	6					1				1				



			Sustainability Stewardship - 13 elements														
Political Jurisdiction	Total Elements Addressed	Enviro- focused citizen cmmsn	Park Dist Model Enviro Policy	Sustain- ability Plan	Climate Action Plan	GRC 1 adop- ter	2009-2013 Governor's Sustain- ability Award	2009-2013 Governor's Sustain- ability Continuous Improve- ment Award	LEED AP on staff	Municipal LEED certified buildings	LEED require- ment/ incentives	2011 Sustainable Community Challenge recipient	2010-2011 Sustainable Community Challenge applicant	Green Initiatives website			
Roselle	8					1											
Schaumburg	25		1	1	1	1	1	1	1					1			
Stone Park	3																
Villa Park	19	1				1				1			1	1			
Westchester	4																
Western Sprgs	7																
Westmont	16	1			1												
Wood Dale	8	1				1							1				
Totals:		10	3	4	2	14	3	2	2	7	2	2	4	3			

			Land – 13 of 20 elements														
Political Jurisdiction	Total Elements Addressed	Complete Streets Policy	CMAP LTA projects	RTA Community Planning Grant	Congestion Mitigation and Air Quality Improvement Program (CMAQ) grant	Illinois Transpor- tation Enhance- ment Program	Adequate Access to Parks/ Open Space	Chicago Wilder- ness member	Emerald Ash Borer grant	EPA Brown- field develop- ment grants (2007- 2013)	IDNR OSLAD/ LWCF grants	IDNR Bike Path Program	Bicycle Friendly Community (2013)	Farmer's Markets			
Addison	12						1		1		1						
Bellwood	6			1													
Bensenville	11			1			1		1		1						
Berkeley	2																
Bloomingdale	10						1		1		1						
Broadview	4						1				1						
Brookfield	14						1	1	1		1			1			
Clarendon Hls	6			1			1	1			1						
Cook Co	12	1		1	1	1			1		1						
Downers Grv	15						1	1	1		1			1			
DuPage Co	11	1		1	1						1	1					
Elk Grove Vlg	13						1		1		1			1			

]	Land – 13 (of 20 elen	nents					
Political Jurisdiction	Total Elements Addressed	Complete Streets Policy	CMAP LTA projects	RTA Community Planning Grant	Congestion Mitigation and Air Quality Improvement Program (CMAQ) grant	Illinois Transpor- tation Enhance- ment Program	Adequate Access to Parks/ Open Space	Chicago Wilder- ness member	Emerald Ash Borer grant	EPA Brown- field develop- ment grants (2007- 2013)	IDNR OSLAD/ LWCF grants	IDNR Bike Path Program	Bicycle Friendly Community (2013)	Farmer's Markets
Elmhurst	25		1				1	1	1		1		1	1
Franklin Park	10			1				1	1		1			
Hillside	4													
Hinsdale	10						1		1		1			1
Itasca	8						1		1		1			
La Grange	12		1	1					1		1			1
La Grange Pk	14						1		1		1			
Lombard	16			1			1		1		1			1
Lyons	7						1				1			
Maywood	7			1	1									
Melrose Park	7			1			1							
N Riverside	4						1							
Northlake	4													

]	Land – 13 (of 20 elen	nents					
Political Jurisdiction	Total Elements Addressed	Complete Streets Policy	CMAP LTA projects	RTA Community Planning Grant	Congestion Mitigation and Air Quality Improvement Program (CMAQ) grant	Illinois Transpor- tation Enhance- ment Program	Adequate Access to Parks/ Open Space	Chicago Wilder- ness member	Emerald Ash Borer grant	EPA Brown- field develop- ment grants (2007- 2013)	IDNR OSLAD/ LWCF grants	IDNR Bike Path Program	Bicycle Friendly Community (2013)	Farmer's Markets
Oak Brook	9					1	1	1						
Oakbrook Terr	6							1						
Roselle	8						1		1					1
Schaumburg	25			1			1	1					1	1
Stone Park	3													
Villa Park	19			1			1		1					1
Westchester	4						1							
Western Sprgs	7			1			1							1
Westmont	16			1			1		1		1			1
Wood Dale	8			1			1							1
Totals	;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	2	2	15	3	2	24	8	17	0	19	1	2	13

				Land –	- 7 of 20	elements			Water – 7 of 13 elements							
Political Jurisdiction	Total Elements Addressed	Tree City USA	Tree City USA (growth award)	Tree City USA Sterling (2000- 2011)	Safe Route to School	Sustain- able Sites Initia- tive (SITES)	Urban and Commu -nity Forestry grants	ICECF Natural Areas Grant	Water Sense Partner	Sustain- able Water- shed Action Team (SWAT) (2008-2013)	Water conser- vation education	Water- shed- based plans	Green infra- struc- ture program	Rain barrel program	Green roofs on muni bldgs	
Addison	12	1	1	1									1		1	
Bellwood	6										1					
Bensenville	11	1	1													
Berkeley	2															
Bloomingdale	10	1									1					
Broadview	4															
Brookfield	14	1		1									1			
Clarendon Hls	6	1														
Cook Co	12							1								
Downers Grv	15	1	1	1	1						1					
DuPage Co	11							1	1				1		1	
Elk Grove Vlg	13	1					1				1				1	
Elmhurst	25	1		1							1					

				Land –	7 of 20	elements	i		Water – 7 of 13 elements							
Political Jurisdiction	Total Elements Addressed	Tree City USA	Tree City USA (growth award)	Tree City USA Sterling (2000- 2011)	Safe Route to School	Sustain- able Sites Initia- tive (SITES)	Urban and Commu -nity Forestry grants	ICECF Natural Areas Grant	Water Sense Partner	Sustain- able Water- shed Action Team (SWAT) (2008-2013)	Water conser- vation education	Water- shed- based plans	Green infra- struc- ture program	Rain barrel program	Green roofs on muni bldgs	
Franklin Park	10															
Hillside	4										1					
Hinsdale	10	1	1													
Itasca	8	1									1					
La Grange	12	1									1					
La Grange Pk	14	1					1				1					
Lombard	16	1	1	1												
Lyons	7										1					
Maywood	7										1					
Melrose Park	7													1		
N Riverside	4															
Northlake	4															
Oak Brook	9										1					
Oakbrook Terr	6										1					

				Land –	7 of 20	elements			Water – 7 of 13 elements						
Political Jurisdiction	Total Elements Addressed	Tree City USA	Tree City USA (growth award)	Tree City USA Sterling (2000- 2011)	Safe Route to School	Sustain- able Sites Initia- tive (SITES)	Urban and Commu -nity Forestry grants	ICECF Natural Areas Grant	Water Sense Partner	Sustain- able Water- shed Action Team (SWAT) (2008-2013)	Water conser- vation education	Water- shed- based plans	Green infra- struc- ture program	Rain barrel program	Green roofs on muni bldgs
Roselle	8	1									1				
Schaumburg	25								1		1	1	1	1	1
Stone Park	3														
Villa Park	19	1			1		1				1		1		
Westchester	4														
Western Sprgs	7	1													
Westmont	16	1	1	1					1						
Wood Dale	8	1													
Totals		18	6	6	2	0	3	2	3	0	16	1	5	2	4



			Wate	er – 6 of 1	l3 eleme	nts				W	aste - 7 el	ements		
Political Jurisdiction	Total Elements Addressed	Water metering	Water conser- vation pricing	Storm- water Utilities	Water conser- vation device rebates	Illinois Green Infra- struc- ture Grant (IGIG)	NPS Section 319 grant	Curbside Recycling	Illinois Recycling Grant	Solid Waste Agency member	Product Steward- ship Institute members	Household Hazardous Waste Grant (2007-2012)	Biosolid re-use - land appli- cation	Illinois Recycling Assoc member
Addison	12	1						1						
Bellwood	6	1						1		1				
Bensenville	11							1	1				1	
Berkeley	2							1		1				
Bloomingdale	10	1						1					1	
Broadview	4							1		1				
Brookfield	14							1		1				
Clarendon Hls	6							1						
Cook Co	12										1		1	1
Downers Grv	15			1				1						
DuPage Co	11						1		1					
Elk Grove Vlg	13	1						1		1		1		
Elmhurst	25	1	1					1				1	1	



			Wate	er – 6 of 1	3 eleme	nts		Waste - 7 elements						
Political Jurisdiction	Total Elements Addressed	Water metering	Water conser- vation pricing	Storm- water Utilities	Water conser- vation device rebates	Illinois Green Infra- struc- ture Grant (IGIG)	NPS Section 319 grant	Curbside Recycling	Illinois Recycling Grant	Solid Waste Agency member	Product Steward- ship Institute members	Household Hazardous Waste Grant (2007-2012)	Biosolid re-use - land appli- cation	Illinois Recycling Assoc member
Franklin Park	10					1		1		1			1	
Hillside	4	1						1		1				
Hinsdale	10							1					1	
Itasca	8	1						1						
La Grange	12	1				1		1		1				
La Grange Pk	14	1				1		1		1				
Lombard	16							1					1	
Lyons	7	1						1		1			1	
Maywood	7	1						1		1				
Melrose Park	7						1	1	1	1				
N Riverside	4	1						1		1				
Northlake	4							1		1				
Oak Brook	9	1						1	1					
Oakbrook Terr	6	1						1						



			Wate	er – 6 of 1	l3 eleme	nts				W	aste - 7 el	ements		
Political Jurisdiction	Total Elements Addressed	Water metering	Water conser- vation pricing	Storm- water Utilities	Water conser- vation device rebates	Illinois Green Infra- struc- ture Grant (IGIG)	NPS Section 319 grant	Curbside Recycling	Illinois Recycling Grant	Solid Waste Agency member	Product Steward- ship Institute members	Household Hazardous Waste Grant (2007-2012)	Biosolid re-use - land appli- cation	Illinois Recycling Assoc member
Roselle	8	1						1						
Schaumburg	25					1		1				1	1	
Stone Park	3							1	1	1				
Villa Park	19	1				1		1						
Westchester	4					1		1		1				
Western Sprgs	7	1						1		1				
Westmont	16		1					1					1	
Wood Dale	8							1						
Totals:	I	17	2	1	0	6	2	33	5	17	1	3	10	1



			Clim	ate Change - 5	5 elements	
Political Jurisdiction	Total Elements Addressed	Cool Cities	US Conf. of Mayors Climate Protection Agreement	ICLEI – Local Govt's for Sustainability member	Carbon/ Greenhouse Gas (GHG) reporting	GHG inventory
Addison	12					
Bellwood	6					
Bensenville	11					
Berkeley	2					
Bloomingdale	10					
Broadview	4					
Brookfield	14	1		1		
Clarendon Hls	6					
Cook Co	12					
Downers Grv	15					
DuPage Co	11					
Elk Grove Vlg	13					
Elmhurst	25	1	1	1		1
Franklin Park	10					



		Climate Change - 5 elements								
Political Jurisdiction	Total Elements Addressed	Cool Cities	US Conf. of Mayors Climate Protection Agreement	ICLEI – Local Govt's for Sustainability member	Carbon/ Greenhouse Gas (GHG) reporting	GHG inventory				
Hillside	4									
Hinsdale	10									
Itasca	8									
La Grange	12									
La Grange Pk	14	1		1						
Lombard	16	1	1			1				
Lyons	7									
Maywood	7									
Melrose Park	7									
N Riverside	4									
Northlake	4									
Oak Brook	9									
Oakbrook Terr	6									
Roselle	8									
Schaumburg	25		1			1				



			Climate Change - 5 elements								
Political Jurisdiction	Total Elements Addressed	Cool Cities	US Conf. of Mayors Climate Protection Agreement	ICLEI – Local Govt's for Sustainability member	Carbon/ Greenhouse Gas (GHG) reporting	GHG inventory					
Stone Park	3										
Villa Park	19	1	1								
Westchester	4										
Western Sprgs	7										
Westmont	16	1	1								
Wood Dale	8										
Totals:		6	5	3	0	3					



Appendix F – Ordinance Questionnaire with DuPage County Responses





Chicago Metropolitan Agency for Planning

Lower Salt	Creek Water	shed Planning	Ordinance	e Questionnaire - S	eptember 2017						
Name of Cou Municipality	2	DuPage County	Contact info respondents emails):	ormation of s (names, phone #s,	Jennifer Boyer, 630-407-6727, jen.boyer@dupageco.org						
Website add	ress(s) of ordin	ance(s):									
DuPage Cou Ordinance	nty Stormwate	r & Flood Plain	https://www	https://www.dupageco.org/EDP/Stormwater_Management/Regulatory_Services/1420/							
DuPage Cou	nty BMP Manı	ıal	https://www.dupageco.org/EDP/Stormwater Management/Water Quality/1424/								
DuPage Cou	nty Building C	ode	https://www	v.dupageco.org/EDP/	Building Permitting/9652/						
DuPage Cou	nty Zoning Or	dinance	https://www	v.dupageco.org/zonir	ug/						
DuPage Cou	nty Subdivisio	n Regulations	http://www	.dupageco.org/zoning	3/						
0	DuPage County Water Supply and Distribution and Wastewater Ordinance			https://www.dupageco.org/Public_Works/1384/							
DuPage Cou	nty Health Coc	les	http://www	http://www.dupagehealth.org/health-codes							
Stormwater Drainage & Detention	Code and standard category	Checklist question	Yes/No <i>or</i> Mostly/ Minimally Addressed	Code section	Current standard text (optional)	Notes/ Comments					
		Does the ordinance	Addressed								
1	Purpose	Include control of runoff rate, volumes, and quality in the purpose statement?	Yes	DPC Countywide Stormwater and Flood Plain Ordinance, April 2013 (Stormwater Ordinance) 15-4.A7, 8, 9, 10	15-4. Purposes of this Ordinance 15-4. A The principal purpose of this Ordinance is to promote effective, equitable, acceptable, and legal stormwater management measures. Other purposes of this Ordinance include: 15-4. A.7 Preventing the further degradation of the quality of ground and surface waters; and 15-4. A.8 Requiring appropriate and adequate provision for site runoff control, especially when the land is developed for human activity; and 15-4. A.9 Requiring the design and evaluation of each site runoff control plan consistent with Watershed capacities; and 15-4. A.10 Encouraging the use of stormwater storage in preference to stormwater conveyance; and						

2	Minimize stormwater quantity	Encourage the use of permeable paving, green roofs, and similar practices that reduce the quantity of runoff that must be handled with innovative or conventional drainage practices?	Yes	Stormwater Ordinance 15-64B and C.; Appendix E. Water Quality Best Management Practices Technical Guidance March 2008 (BMP Manual)	15-64.B Design criteria may be taken from the DuPage Appendix E Water Quality Best Management Practices Technical Guidance Manual or approved equivalent. 15-64.C If the practices listed under 15.64.A.1 or 15.64.A.2 are not utilized, then volume control and pollutant control shall be provided separately for all new impervious surfaces in accordance with the following criteria: 15-64.C.1 The required volume control shall be calculated as the product of the New Impervious Area and a 1.25" rainfall event. No abstractions are taken on the rainfall depth.	
3	Natural drainage practices	Encourage/require the use of natural drainage practices (e.g., swales, filter strips, bio-infiltration devices, and natural depressions over storm sewers) to minimize runoff volumes and enhance pollutant filtering?	Yes	Stormwater Ordinance 15-64.A, B; Appendix E. Water Quality Best Management Practices Technical Guidance March 2008 (BMP Manual)	 15-64. Post Construction Best Management Practices Design Criteria. 15-64.A PCBMPs shall provide volume and pollutant control using one of the following practices: 15-64.A.1 Infiltration of 1.25 inches for all new impervious surfaces; or 15-64.A.2 Native vegetated wetland bottom site runoff storage basin; or 15-64.A.3 PCBMPs not constructed pursuant to Sections 15-64.A.1 or 15-64.A.2 shall be constructed in accordance with 15-64.C. 15-64.B Design criteria may be taken from the DuPage Appendix E Water Quality Best Management Practices Technical Guidance Manual or approved equivalent. 	
4	Detention credits	Provide detention credit for practices, such as permeable paving or bio- infiltration, that provide temporary storage of runoff in the sub-surface void spaces of stone or gravel?	Yes	Stormwater Ordinance 15-64.C.2; 15-72.D.6.	15-64.C.2 The volume calculated shall be subtracted from any volume of site runoff storage that is also required. 15-72.D.6 For sites 5-acres or greater, a hydrologic model that produces a runoff hydrograph shall be utilized, and the runoff hydrograph routed through a basin which provides sufficient storage such that the combination of control structure and runoff storage volume limits the discharge to the allowable peak runoff. The calculated volume is then the required site runoff storage volume. This volume may be reduced by any volume control BMP (see Article VIII) volume if such a volume is required, and is then referred to as the Modified Required Site Runoff Storage Volume.	
5	Peak discharge	Require that peak post-development discharge from events less than or equal to the two-year, 24-hour event be limited to 0.04 cfs per acre of watershed?	Mostly	Stormwater Ordinance 15-73.B.	15-73.B For locations draining more than 5 acres, but less than 100-acres, the combination of control structure, site runoff storage and overflow conveyance shall be tested in a with-development hydrologic model and the design shall be further modified by adding additional site runoff storage, as necessary so that the Pre-Development Site 2-year and 100-year, 24-hour duration peak discharges are not increased compared to the with Development Site condition.	Applicants are asked to match the pre-project condition in the 2- and 100- year, 24-hour events.



6	Detention design	Require detention design standards that maximize water quality mitigation benefits, with a requirement for "naturalized" wet bottom and/or wetland basins over dry basins?	Mostly	Stormwater Ordinance 15-64A, B; BMP Manual	 15-64. Post Construction Best Management Practices Design Criteria. 15-64. A PCBMPs shall provide volume and pollutant control using one of the following practices: 15-64.A.1 Infiltration of 1.25 inches for all new impervious surfaces; or 15-64.A.2 Native vegetated wetland bottom site runoff storage basin; or 15-64.A.3 PCBMPs not constructed pursuant to Sections 15-64.A.1 or 15-64.A.2 shall be constructed in accordance with 15-64.C. 15-64.B Design criteria may be taken from the DuPage Appendix E Water Quality Best Management Practices Technical Guidance Manual or approved equivalent. 	Encourages naturalized detention basins, but allows for BMP treatment train approach.
7	Water quality performance standards	Require conformance to numerical water quality performance standards (such as percent removal of sediment or phosphorus)?	Mostly	Stormwater Ordinance 15-64A, B; 15-64 6.6; BMP Manual	 15-64. Post Construction Best Management Practices Design Criteria. 15-64. A PCBMPs shall provide volume and pollutant control using one of the following practices: 15-64.A.1 Infiltration of 1.25 inches for all new impervious surfaces; or 15-64.A.2 Native vegetated wetland bottom site runoff storage basin; or 15-64.A.3 PCBMPs not constructed pursuant to Sections 15-64.A.1 or 15-64.A.2 shall be constructed in accordance with 15-64.C. 15-64.B Design criteria may be taken from the DuPage Appendix E Water Quality Best Management Practices Technical Guidance Manual or approved equivalent. 15-64.C.6 Applicants shall identify the pollutants of concern that may be generated by the proposed Development from the following list: Total Suspended Soils (TSS): Metals and Oils; and Nutrients consisting of nitrogen and phosphorous. Proposed PCBMPs shall only be required to treat those pollutants identified and agreed to by the Director or Administrator. 	Assumes pollutant removal percentage if designed to standards in the BMP Manual.
8	Floodway and stream detention restrictions	Prohibit detention in the floodway and on- stream detention, unless it provides a regional stormwater storage benefit (e.g., for upstream properties and/or multiple sites) and is accompanied by other upstream water quality BMPs, such as bio-infiltration?	Mostly	Stormwater Ordinance 27-A3; 82-D; 15-72.D.4; 15- 75C	 15-27. General Stormwater and Flood Plain Requirements. The following general stormwater and Flood Plain requirements shall apply to all Development. 15-27.A Development shall not: 15-27.A.3 Pose any unreasonable new or additional increase in Flood velocity or impairment of the hydrologic and hydraulic functions of streams and Flood Plains unless a Watershed Benefit is realized; 15-72.D When site runoff storage is required, it will be calculated as a volume utilizing the following Development parameters and procedures 15-72.D.4 For purposes of calculating the required volume, a control structure shall be assumed that limits the peak runoff from the site to 0.10 cfs/acre for the disturbed area.; 15-75. Storage facilities located within the Regulatory Floodway shall: 15-75.C Provide a Watershed Benefit. 	Applicant must prove that detention is available.

9	Stormwater discharge	Prohibit the direct discharge of undetained stormwater into wetlands?	No	Stormwater Ordinance 15-87	 15-87. Indirect Impacts to Wetlands 15-87.B A Development or hydraulic alteration is considered to have an indirect impact if one of the following limitations are exceeded: 15-87.B.1 An Increase or decrease in the high water level of more than 3 inches in the 2.03 inch, 2.51 inch, and 3.04 inch, twenty-four (24) hour rainfall events; or 15-87.B.2 Changes in the wetland's draw down time resulting in an increase or decrease of greater than 48 hours from the peak elevation to the normal water level. The draw down times must be calculated for the 2.03 inch, 2.51 inch, and 3.04 inch, twenty-four (24) hour rainfall event for both the existing and proposed conditions; or 15-87.B.3 An increase in the duration of inundation of more than 20% from existing to proposed conditions for the 5.51 and 7.58 inch, twenty-four (24) hour rainfall event. A minimum increase of 48 hours is allowed for these storm events. 15-87.B.4 The Director, or Administrator in a Complete Waiver Community, can, based on a review of the submitted information, determine that proposed impacts outside of the above limits will not affect the existing plant communities, and therefore, would be allowable. 15-87.C Under certain circumstances, the Director, or Administrator in a Complete Waiver Community, may allow minor variations to the normal water level if it can be demonstrated by an Environmental Scientist to be an ecological benefit to the wetland system. 15-87.D When the dominant plant community or wetland type is known to be sensitive to relatively small changes in depth and duration of inundation (e.g., sedge meadow, vernal pool), then the thresholds as outlined in 15-87.B may be reduced by the Director, or Administrator in a Complete Waiver Community. 	Applicants are required to preserve wetland hydrology first. Sometimes hydrology comes undetained as preferable to not at all.
10	Maintenance	Require formal maintenance plans and contracts for the long-term maintenance and vegetative management of all new detention facilities?	Yes	Stormwater Ordinance 15-58.A; 15-40.B.; 15-49.E.3; 15-4.A.19	15-58.A Soil erosion and sediment control features shall be considered as part of any Development's initial site planning process. Soil erosion and sediment control related measures are required to be constructed and maintained for any land disturbance activity. The following factors shall be addressed: 15-58.A.1 The susceptibility of the existing soils to erosion 15-58.A.2 Existing native and mature vegetation 15-58.A.3 Existing natural or established drainage ways 15-58.A.4 The natural contours of the land (continued on next page)	



					15-40.B Maintenance Plan. When the Development includes construction of a Site Runoff Storage Facility or Post Construction Best Management Practices, a maintenance plan specifying tasks and frequency shall be submitted. 15-49.E A BMP specific planting/seeding plan for all areas to be vegetated which shall include: 15-49.E.1 Identified locations for all plantings (e.g., lawn, upland prairie, wet prairie, etc.), seeding and planting specifications and methodology. 15-49.E.2 A schedule for installation. 15-49.E.3 Proposed maintenance and monitoring provisions. 15-49.E.4 An opinion of probable cost to construct the BMPs 15-4.A.19 Requiring regular, planned Maintenance of stormwater management facilities	
Soil Erosion & Sediment Control	Code and standard category	Checklist question	Yes/No <i>or</i> Mostly/ Minimally Addressed	Code section	Current standard text (optional)	Notes/ Comments
1	Limiting sediment delivery	Include a comprehensive purpose statement which limits sediment delivery, as close as practicable, to pre- disturbance levels and minimizes effects on water quality, flooding, and nuisances?	Yes	Stormwater Ordinance 15-4.A.6.	15-4. Purposes of this Ordinance 15-4. A The principal purpose of this Ordinance is to promote effective, equitable, acceptable, and legal stormwater management measures. Other purposes of this Ordinance include: 15-4.A.6 Controlling sediment and erosion in and from Stormwater Facilities, Developments, and construction sites;	



2	Minimize	Include a	Mostly	Stormwater	15-50. Soil Erosion and Sediment Control Submittal Requirements.	Not specifically
	sediment	comprehensive set of		Ordinance Article 7;	15-50.A Developments that only require approval of the soil erosion and	10-year.
	transport	principles that		15-50; BMP Manual	sediment control provisions of this Ordinance and do not require approval for	
		minimize sediment			any other aspect of this Ordinance shall be reviewed and processed as a Letter	
		transport from the site			of Permission (LOP). To be eligible for a LOP, in addition to the requirements	
		for all storms up to			of this Ordinance, the Applicant must certify that he is aware of the design	
		the ten-year			requirements of the IEPA NPDES ILR10 permit and certify that the plan meets	
		frequency event?			those requirements.	
					15-50.B For Developments with less than one acre of land disturbance that are	
		(These principles			not part of a larger common plan, a qualified designer shall certify that the	
		should include			Development meets the soil erosion and sediment control design criteria found	
		provisions to			in Article VII have been met. However, formal submittal of the information	
		minimize the area			under Section 15-50.D. is unnecessary unless the Director or Administrator	
		disturbed and the			requests demonstration of compliance with these provisions.	
		time of disturbance;			15-50.C For Developments that disturb one or more acres of land area, or will	
		follow natural			disturb less than one acre of land, but are part of a larger common plan that	
		contours; avoid			will ultimately disturb one or more acre land area, the Applicant shall prepare	
		sensitive areas;			and provide a copy of a SWPPP in accordance with the requirements of Illinois	
		require that sediment			Environmental Protection Agency General NPDES Permit No. ILR 10, Part	
		control measures be			IV.D.1.a-f (Contents of Plan), Part IV.D.2.a-d (Controls), Part IV.D.3	
		in place as part of			(Maintenance) and Part IV.D.4.a-f (Inspections). The plan prepared for the	
		land development			SWPPP may be submitted as the SESC Plan for the Development.	
		process before			15-50.D If the SESC plan does not appear adequate to comply with the design	
		significant grading or			requirements of Article VII, in the opinion of the Administrator or Director,	
		disturbance is			then the Administrator or Director may require submittal of any or all of the	
		allowed; and require			following to demonstrate the plan's compliance. Site maps which indicate:	
		the early			15-50.D.1 One foot contours with delineated sub-basins.	
		implementation of			15-50.D.2 Approximate slopes anticipated before and after major grading	
		soil stabilization			activities.	
		measures on			15-50.D.3 Locations where vehicles enter or exit the site and, controls to prevent	
		disturbed areas.)			offsite sediment tracking areas, and concrete washout controls and procedures,	
					limits of soil disturbance, and the location of major structural and nonstructural	
					controls identified in the plan.	
					15-50.D.4 The location of areas where stabilization practices are expected to	
					occur.	
					15-50.D.5 Surface waters (including Wetlands), and locations where stormwater	
					is discharged to a surface water.	
					15-50.D.6 Developments that will extend through winter shall provide a	
					description of winter specific soil erosion and sediment control measures to be	
					implemented.	
					15-50.D.7 A description of the nature of the construction activity or demolition	
					work.	
					15-50.D.8 A description of the intended sequence of major activities which	

disturb soils for major portions of the site (e.g., clearing, grubbing, excavation,
grading) and construction stabilization schedule.
15-50.D.9 An estimate of the total area of the site, and the total area of the site
that is expected to be disturbed by excavation, grading, or other activities.
ARTICLE VII. SOIL EROSION AND SEDIMENT CONTROL REQUIREMENTS
15-58. Soil Erosion and Sediment Control General Requirements
15-58.A Soil erosion and sediment control features shall be considered as part
of any Development's initial site planning process. Soil erosion and sediment
control related measures are required to be constructed and maintained for any
land disturbance activity. The following factors shall be addressed:
15-58.A.1 The susceptibility of the existing soils to erosion
15-58.A.2 Existing native and mature vegetation
15-58.A.3 Existing natural or established drainage ways
15-58.A.4 The natural contours of the land
15-58.A.5 Development phasing
15-58.A.6 Emphasis first on erosion control, then sediment control.
15-58.A.7 Winter shutdown
15-58.B Temporary erosion and sediment control measures shall be functional
and consistent with this Article of the Ordinance and the NPDES Stormwater
Permit in effect prior to land disturbance activities.
15-58.C Soil disturbance shall be conducted in a manner that minimizes
erosion. Areas of the Development Site that will not be graded shall be
protected from construction traffic or other disturbance until stabilization of the
disturbed areas has been completed.
15-58.D Soil stabilization measures shall include the use of temporary or
permanent measures.
15-59. Soil Erosion and Sediment Control Plan Design Criteria
15-59.A Channels and adjoining properties shall be protected from erosion and
sedimentation. Where concentrated flow leaves a Development Site, effective
energy dissipation shall be placed onsite at discharge locations.
15-59.B Erosion control blanket shall be required on all interior site runoff
storage facilities side slopes between normal water level and high water level.
15-59.C Erosion control blanket to be placed in wetland or Buffer shall be 100%
biodegradable, unless an alternative material is approved by the Director or
Administrator. This requirement does not include turf reinforcement mats or
other structural materials necessary for high erosion or scour areas.
15-59.D Land disturbance activities in streams shall be avoided, where possible.
If disturbance activities are unavoidable, the following requirements shall be
met:
15-59.D.1 Temporary stream crossings shall be constructed of non-erosive
material.
15-59.D.2 The time and area of disturbance of a stream shall be kept to a
minimum. The stream, including bed and banks, shall be restabilized within 48



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	hours after Channel disturbance is completed.
	15-59.E Soil erosion and sediment control measures shall be placed where there
	is a potential for erosion and sized appropriately for the tributary drainage
	area, and disturbed areas draining less than one acre shall, at a minimum, be
	protected by a Filter Barrier (including filter fences, which at a minimum, meet
	the applicable sections of the AASHTO Standard Specification 288-00, or
	equivalent control measures) to control all off-site runoff from disturbed areas.
	The Filter Barrier shall be designed in accordance with the following:
	15-59.E.1 The use of straw bales as a Filter Barrier or ditch check is prohibited.
	15-59.E.2 Silt Fences can be used to intercept sheet flow only. Silt Fences cannot
	be used as velocity checks in ditches or swales, nor can they be used where
	they will intercept concentrated flows.
	15-59.E.3 Ditch checks shall be constructed using non-erodible materials or
	prefabricated devices. Straw or hay bales are not acceptable.
	15-59.E.4 Reinforced Silt Fences (normal Silt Fence reinforced with woven wire
	fencing) can be used to intercept sheet flow Runoff from disturbed areas
	greater than one acre.
	15-59.E.5 All undisturbed wetland, Flood Plain, waters and Buffer areas shall,
	at a minimum, have a barrier of protection. The barrier shall be placed at the
	limits of soil disturbance and consist of :
	15-59.E.5.a. A dual row of Silt Fence, and a row of orange construction fence;
	or
	15-59.E.5.b. A dual Silt Fence barrier, with one of the fences being of high
	visibility material.
	15-59.E.5.c. Alternative practices offering comparable protection to wetland,
	Flood Plain, waters, and Buffer may be used to prevent impact where
	applicable.
	15-59.E.5.d. Additional soil erosion and sediment control measures may be
	required to adequately protect these sites.
	15-59.F Disturbed areas with drainage areas of one (1) acre or greater, but fewer
	than 5 acres shall, at a minimum, be protected by a Sediment Trap or
	equivalent control measure at a point downslope of the disturbed area.
	15-59.G Disturbed areas with drainage areas of five (5) acres or greater, shall, at
	a minimum, be protected by a Sediment Basin, in accordance with 15-59.H,
	with a perforated filtered riser pipe or equivalent control measure at a point
	downslope of the disturbed area.
	15-59.H Sediment Basins shall have both a permanent pool (dead storage) and
	additional volume (live storage) with each volume equal to the Runoff amount
	of a 2 year, 6 hour event over the onsite hydrologically disturbed tributary
	drainage area to the Sediment Basin. The available sediment volume below
	normal water level, in addition to the dead storage volume, shall be sized to
	store the estimated sediment load generated from the site over the duration of
	the construction period. For construction periods exceeding 1 year, the 1 year

sediment load and a sediment removal schedule may be submitted. If the site
runoff storage basin for the proposed Development condition of the site is used
for Sediment Basin, the above volume requirements will be explicitly met. Until
the site is finally stabilized, the basin permanent pool of water shall meet the
above volume requirements and have a filtered perforated riser protecting the
outflow pipe.
15-59.I Pumping sediment laden water into any Stormwater Facility that is not
designated to be a sediment control measure, Sediment Trap, or Sediment
Basin either directly or indirectly without filtration is prohibited.
15-59.J Water removed from traps, basins and other water holding depressions
or excavations must first pass through a sediment control or filtration device.
When dewatering devices are used, discharge locations shall be protected from
erosion. Discharges shall be routed through an effective sediment control
measure (e.g., Sediment Trap, Sediment Basin or other appropriate measure).
15-59.K All discharges to undisturbed area, stabilized area or watercourse shall
be designed at a non-erosive velocity corresponding to the soil and vegetative
cover of the undisturbed area.
15-59.L All storm sewers, storm drain inlets and culverts that are, or will be
functioning during construction shall be protected by sediment control
measures. The sediment and erosion control measures shall be maintained until
the site is stabilized.
15-59.M A stabilized construction entrance of aggregate underlain with filter
cloth, or graveled road, or access drive, or parking area of sufficient width and
length, and/or vehicle wash down facilities, shall be provided to prevent soil
from being tracked or deposited onto public or private roadways. Any soil
reaching a public or private roadway shall be removed immediately, or as
warranted, and transported to a controlled sediment disposal area.
15-59.N All temporary and permanent stormwater conveyance Channels,
including ditches, swales, diversions, and the outlets of all Channels and pipes
shall be designed and constructed to withstand velocities that have the
potential to cause damage or soil erosion.
15-59.O Earthen embankments with constructed side slopes steeper than 3H:1V
must be constructed with appropriate stabilization as approved by the Director
or the Administrator.
15-59.P Temporary diversions shall be constructed, as necessary, to direct all
Runoff through an effective sediment control measure (e.g., Sediment Trap,
Sediment Basin or other appropriate measure).
15-59.Q To the extent possible, soil stockpile locations shall be shown on the
soil erosion and sediment control plan.
15-59.R Soil stockpiles shall not be located in a drainageway, Flood Plain area
or a designated Buffer, unless otherwise approved, under specific conditions to
be established by the Director or Administrator.
15-59.S Stockpiles to remain in place more than three days shall be provided



					with soil erosion and sediment control measures. 15-59.T The Applicant shall provide adequate receptacles for the deposition of all construction debris generated during the Development process. The Applicant shall not cause, or permit, the dumping, depositing, dropping, throwing, blowing, discarding or leaving of construction material debris upon or into any Development Site, Channel, pond, Lake, wetland, Buffer or Waters of DuPage County. The Applicant shall maintain the Development Site free of uncontrolled construction debris. Construction site operators shall implement appropriate soil erosion and sediment control, and control waste such as, discarded Building materials, concrete truck washout, chemicals, litter, and sanitary waste that may cause adverse impacts to water quality. 15-59.U All temporary erosion and sediment control measures shall be removed within 30 days after final stabilization is achieved. Trapped sediment and other disturbed soils resulting from temporary measures shall be properly disposed of prior to permanent stabilization. 15-59.V Design criteria, standards and specifications for erosion and sediment control shall be taken from one of the following sources: 15-59.V.1 Handbooks: Standards and specifications contained in The Illinois Urban Manual, as amended, DuPage Appendix E Water Quality Best Management Practices Technical Guidance Manual and the IDOT Standard Specifications for Road and Bridge Construction. 15-59.V.2 Other design criteria, standards and specifications, provided prior written approval is obtained from the Administrator or Director. 15-59.W Applicant with land disturbing activities greater than 1 acre shall provide a statement acknowledging that the site complies with the IEPA NPDES ILR10 permit, if applicable.
3	Ordinance applicability - size	Require ordinance applicability for any land disturbing activity in excess of 5,000 square feet?	Yes	Stormwater Ordinance 15- 30.A.3.	15-30. Stormwater Management Certifications. Any Person proposing a Development shall obtain a Stormwater Management Certification, or the Development must fit all conditions of a General Certification (Section 15-32), or if applicable, obtain a Letter of Permission (Section 15-31) unless the Development meets all of the criteria of Section 15-30.A or one of the following criteria of Section 15-30.B. 15-30.A.1 On a Development Site that does not include Flood Plain, Wetlands or Buffers; and 15-30.A.2 The Development does not add 2,500 square feet or more of Net New Impervious Area compared to the pre-Development conditions, and 15-30.A.3 Does not include 5,000 square feet or more of land disturbing activities.

appl	plicability cation	Require ordinance applicability for any land disturbing activity in excess of 500 square feet if adjacent to stream, lake, or wetland?	Yes	Stormwater Ordinance 15-30.A.1	15-30. Stormwater Management Certifications. Any Person proposing a Development shall obtain a Stormwater Management Certification, or the Development must fit all conditions of a General Certification (Section 15-32), or if applicable, obtain a Letter of Permission (Section 15-31) unless the Development meets all of the criteria of Section 15-30.A or one of the following criteria of Section 15-30.B. 15-30.A The Development is: 15-30.A.1 On a Development Site that does not include Flood Plain, Wetlands or Buffers; and 15-30.A.2 The Development does not add 2,500 square feet or more of Net New Impervious Area compared to the pre-Development conditions, and 15-30.A.3 Does not include 5,000 square feet or more of land disturbing activities.	Triggered in floodplain, buffer, wetland
5 Site or requirements	uire- nts	Include explicit site design requirements for sediment control measures, conveyance channels, soil stabilization, construction adjacent to water bodies, construction entrances, etc.?	Yes	Stormwater Ordinance 15-40.E; 15-50; 15-59.V	15-40.E Soil Erosion and Sediment Control. All Developments must provide both temporary and permanent Soil Erosion and Sediment Control; however, plans for these measures must be submitted for review only where the Development is required to obtain a Stormwater Management Certification (Section 15-30). Developments required to make application may obtain a Letter of Permission (Section 15-31), even if it is not a Minor Development, as long as no other aspect of the Development requires review under Articles VIII, IX, X or XI. All other applications shall include the following based on area of land disturbance of the proposed Development; 15-50.B For Developments with less than one acre of land disturbance that are not part of a larger common plan, a qualified designer shall certify that the Development meets the soil erosion and sediment control design criteria found in Article VII have been met. However, formal submittal of the information under Section 15-50.D. is unnecessary unless the Director or Administrator requests demonstration of compliance with these provisions.; 15-50.C For Developments that disturb one or more acres of land area, or will disturb less than one acre of land, but are part of a larger common plan that will ultimately disturb one or more acre land area, the Applicant shall prepare and provide a copy of a SWPPP in accordance with the requirements of Illinois Environmental Protection Agency General NPDES Permit No. ILR 10, Part IV.D.1.a-f (Contents of Plan), Part IV.D.2.a-d (Controls), Part IV.D.3 (Maintenance) and Part IV.D.4.a-f (Inspections). The plan prepared for the SWPPP may be submitted as the SESC Plan for the Development.	

6	Site design references	Adopt by reference the "Illinois Urban Manual" published by the Natural Resources Conservation Service and the Illinois Environmental Protection Agency (1995, updated 2010) and the "Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control" published in 1988 (the Greenbook)? (These references provide additional design standards and guidelines beyond the specific standards spelled out in the	Yes	Stormwater Ordinance 15-59.V	15-59.V Design criteria, standards and specifications for erosion and sediment control shall be taken from one of the following sources: 15-59.V.1 Handbooks: Standards and specifications contained in The Illinois Urban Manual, as amended, DuPage Appendix E Water Quality Best Management Practices Technical Guidance Manual and the IDOT Standard Specifications for Road and Bridge Construction.	
7	Maintenance	ordinance.) Require routine maintenance of all erosion and sediment control practices?	Yes	Stormwater Ordinance 15-58.B.	15-58.B Temporary erosion and sediment control measures shall be functional and consistent with this Article of the Ordinance and the NPDES Stormwater Permit in effect prior to land disturbance activities.	
8	Inspection	Require inspection by appropriately trained personnel of construction sites at critical points in the development process to ensure that measures are being correctly installed and maintained?	Yes	Stormwater Ordinance 15-17.D; 15-20.A.; 15-105.A.;	15-17.D Stormwater Management Certification Reviews. Overall responsibility for supervision of the review of all aspects of a Stormwater Management Certification Application under the jurisdiction of this Ordinance rests with the Administrator, however the Administrator shall ensure that technical reviews are under the supervision of a Professional Engineer meeting the requirements of Section 15-127.A.3.a.1 and 15-127.A.3.a.2 for Complete Waiver Communities and Section 15-127.A.3.b.1. for Partial Waiver Communities. The Administrator will also utilize, as the situation requires, the appropriate experts who must meet the requirements of Sections 15-127.A.3.a.3 and 15-127.A.3.a.4 for a Complete Waiver Community or Section 15-127.A.3.b.2 for a Partial Waiver Community to review those aspects of the Development lying outside of the Professional Engineer's area of expertise in accordance with the following: (continued on next page)	



9	Enforcement	Provide effective	Yes	Stormwater	 15-17.D.1 In a Partial Waiver Community the Professional Engineer may utilize a Person with expertise in plant ecology for design review and construction observation of PCBMP installations which rely upon vegetation for water quality or Runoff volume reduction. The Professional Engineer may utilize a Soil Scientist or geotechnical engineer, or other Person with significant applicable soils expertise for PCBMP installations which rely on infiltration for water quality improvement and volume reduction. The Professional Engineer will coordinate review comments on an application with those from the Director on the same Development. 15-17.D.2 In a Complete Waiver Community, the reviewing Professional Engineer shall provide a written opinion that the proposed Development meets the minimum requirements of this Ordinance. Wetland delineation and other wetland or Buffer related aspects outside the expertise of the Professional Engineer must be reviewed by an Environmental Scientist employed by the Community in accordance with Section 15-127.A.3.a.3 who shall provide a written opinion on those matters within their area of expertise that the proposed Development meets the minimum requirements of this Ordinance. 15-17.D.3 In a non-waiver Community, the Director, or his designee, will determine the appropriate individuals to review the application and coordinate review comments. 15-54.C Soil Erosion and Sediment Control Security 	
		enforcement mechanisms including performance bonds, stop-work orders, and penalties, as appropriate?		Ordinance 15-54.C.; 15-103;	15-54.C. 301 Prostor and Sedment Control Security 15-54.C.1 If a soil erosion and sediment control security is required pursuant to Section 15-40.D.2 of this Ordinance, such a security shall include: 15-54.C.1.a. An irrevocable letter of credit, or such other adequate security as the Director or the Administrator shall approve, in an amount equal to not less than one hundred ten percent (110%) of the estimated probable cost to install and maintain the erosion and sediment control measures, which estimated probable cost shall be approved by the Director or the Administrator; and 15-54.C.1.b. A statement signed by the Applicant granting the Director or the Administrator, as applicable, the right to draw on the security and the right to enter the Development Site to complete erosion and sediment control measures in the event that such measures are not installed and maintained according to the established schedule. 15-54.C.2 The security required by this Section 15-54.C shall be maintained and renewed by the Applicant, and shall be held in escrow by the Director or the Administrator, as applicable, until the conditions set forth in Sections 15-54.C.3 and 15-55 are satisfied. 15-54.C.3 After establishment of vegetation, removal of all sediment from Stormwater Facilities unless designed otherwise, and final inspection and approval by the Director or the Administrator, as applicable, one hundred percent (100%) of the erosion and sediment control security shall be released.	

Floodplain Management	Code and standard category	Checklist question Does the ordinance	Yes/No <i>or</i> Mostly/ Minimally Addressed	Code section	Current standard text (optional)	Notes/ Comments
1	Purpose	Include protection of hydrologic functions, water quality, aquatic habitat, recreation, and aesthetics in the purposes for the ordinance?	mostly	Stormwater Ordinance 15-4.A.3, 4, 5, 7, 10, 18, 20	15-4. Purposes of this Ordinance 15-4. A The principal purpose of this Ordinance is to promote effective, equitable, acceptable, and legal stormwater management measures. Other purposes of this Ordinance include: 15-4. A.3 Protecting human life and health from the hazards of Flooding and degradation of water quality; and 15-4. A.4 Protecting and enhancing the quality, quantity, and availability of surface and groundwater resources; and 15-4. A.5 Preserving and enhancing existing Wetlands, Buffers and aquatic environments, and encouraging restoration of degraded areas; and 15-4. A.7 Preventing the further degradation of the quality of ground and surface waters; and 15-4. A.10 Encouraging the use of stormwater storage in preference to stormwater conveyance; and 15-4. A.18 Incorporating water quality and habitat protection measures in all stormwater management activities within DuPage County; and 15-4. A.20 Encouraging control of stormwater quantity and quality at the most site-specific or local level; and	Does not address recreation or aesthetics
2	Floodway restrictions - use	Restrict modifications in the floodway to the following appropriate uses: public flood control projects, public recreation and open space uses, water dependent activities, and crossing roadways and bridges?	mostly	Stormwater Ordinance 15-82.A.	 15-82. Regulatory Floodway Performance Standards 15-82. A In the Regulatory Floodway, all of the requirements of Article X shall apply to any proposed Development, and only the following Appropriate Uses shall be considered for Certifications: 15-82. A.1 Flood control structures, dikes, Dams and other public works or private improvements relating to the control of drainage, Flooding or erosion or water quality or habitat for fish or wildlife; 15-82. A.2 Structures or facilities relating to the use of, or requiring access to, the water or shoreline, such as pumping and treatment facilities, and facilities and improvements related to recreational boating, commercial shipping and other functionally dependent uses; (continued on next page) 	Pumping and treatment plants are allowed in the floodplain.

		(The ordinance would thereby prohibit new treatment plants and pumping facilities; detached garages, sheds, and other non- habitable structures; parking lots and aircraft parking aprons; and roadways which run longitudinally along a watercourse.)			 15-82.A.3 Storm and sanitary sewer outfalls; 15-82.A.4 Underground and overhead utilities; 15-82.A.5 Recreational facilities such as playing fields and trail systems including any related fencing built parallel to the direction of Flood flows; 15-82.A.6 Bridges, culverts, roadways, sidewalks, and railways, and any modification thereto; 15-82.A.7 Regulatory Floodway regrading, without fill, to create a positive slope toward a watercourse; 15-82.A.8 Floodproofing activities to protect existing Structures such as, but not limited to, constructing water tight window wells, and elevating, without enlarging the footprint; 15-82.A.9 In-ground swimming pools, without fill. 	
3	Limit stream channel modification	Discourage stream channel modification and require miti- gation of unavoidable adverse water quality and aquatic habitat impacts? (This would be done in cooper- ation with the USACE for federally jurisdictional waterways.)	No			Mitigation is required for impacts to the floodplain, wetland, wetland buffer.
4	Floodway restrictions - erosion	Require effective soil erosion and sediment control measures for ALL disturbances in the floodway?	Yes	Stormwater Ordinance 15-40.E	15-40.E Soil Erosion and Sediment Control. All Developments must provide both temporary and permanent Soil Erosion and Sediment Control; however, plans for these measures must be submitted for review only where the Development is required to obtain a Stormwater Management Certification (Section 15-30). Developments required to make application may obtain a Letter of Permission (Section 15-31), even if it is not a Minor Development, as long as no other aspect of the Development requires review under Articles VIII, IX, X or XI. All other applications shall include the following based on area of land disturbance of the proposed Development: 15-40.E.1 If the land disturbance is less 1 acre and does not disturb the bed and banks of a Channel draining more than 100- acres, and the Development does not involve impact to Buffer or wetland or Flood Plain, and is not part of a larger common plan, then the submittal shall be per Section 15-50.B. 15-40.E.2 If the land disturbance is one 1-acre or greater or disturbs the bed or banks of a Channel draining more than 100-acres, or the Development includes impact to Buffers or Wetlands or Flood Plain, then the requirements of Sections 15-50.C and 15-50.D shall apply.	



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Stream & Wetland Protection	Code and standard category	Checklist question Does the ordinance	Yes/No or Mostly/ Minimally Addressed	Code section	Current standard text (optional)	Notes/ Comments
	Purpose	Include a comprehensive purpose statement which addresses the protection of hydrologic and hydraulic, water quality, habitat, aesthetic, and social and economic values and functions of wetlands?	Yes	Stormwater Ordinance 15-2.; 15- 3.; 15-4	15-2. DuPage County Stormwater Management Plan. The Plan was recommended by the Committee and adopted by the DuPage County Board, after review by the appropriate agencies and public hearing, as Ordinance No. OSM-0001-89. The Plan is available for public inspection in the office of the DuPage County Clerk.; 15-3. Findings. The Committee and the DuPage County Board hereby find that: 15-3.A Inappropriate use of the Flood Plain and Development have increased Flood risk, Flood damage, and environmental degradation; and 15-3.B It is necessary to consider stormwater management on a Watershed basis; and 15-3.C DuPage County drains poorly because of flat topography and soils of low permeability; and 15-3.D The costs of increasing Channel capacity are prohibitive; and 15-3.F Many land development practices upset the natural hydrologic balance of DuPage County streams; and 15-3.F Most Flood damage occurs to Structures developed adjacent to streams in the Flood Plain or Floodway; and 15-3.G Wetlands represent a significant portion of the natural Watershed storage in DuPage County, and Wetlands play an essential role in Flood storage, conveyance, sediment control, and water quality enhancement; and 15-3.I The authority for control of Stormwater Facilities is widely distributed to many entities in DuPage County; and 15-3.J There are many strong local stormwater regulations contributes to the extent and severity of Flood damage.; 15-4.A.5 Preserving and enhancing existing Wetlands, Buffers and aquatic environments, and encouraging restoration of degraded areas; and 15-4.A.12 Meeting the Illinois Department of Natural Resources, Office of Water Resources' Floodway permitting requirements delineated in 615 ILCS 5/18g ("An Act in Relation to the Regulation of the Rivers, Lakes and Streams of the State of Illinois"), as amended from time to time;	

2	Protection	Protect the beneficial functions of streams, lakes, and wetlands from damaging modifications, including filling, draining, excavating, damming, impoundment, and vegetation removal? (This could be done through some combination of avoidance and mitigation requirements, similar to Army Corps of Engineer requirements for federally	Yes	Stormwater Ordinance 15-30; 15- 40; 15-48; 15-86; 15- 87	 15-30. Stormwater Management Certifications. Any Person proposing a Development shall obtain a Stormwater Management Certification, or the Development must fit all conditions of a General Certification (Section 15-32), or if applicable, obtain a Letter of Permission (Section 15-31) unless the Development meets all of the criteria of Section 15-30.A or one of the following criteria of Section 15-30.B. 15-30.A The Development is: 15-30.A.1 On a Development Site that does not include Flood Plain, Wetlands or Buffers; 15-40.D.3 A Natural Area, Wetland and Buffer Mitigation Area Security shall be posted per Section 15-54.D. Whenever a natural area is being restored or a Wetland or Buffer is impacted and mitigated, unless Mitigation is provided by fee-in-lieu.; 15-48. Wetland and Buffer Impact Submittals.; 15-86. Requirements for Development affecting Wetlands 15-86.A Development affecting Wetlands may not occur without Certification, or letter of permission, if applicable. 15-86.B Development proposing to affect Critical Wetlands must demonstrate through an Alternatives Analysis that the presence of Critical Wetlands precludes all economic use of the entire Parcel, and that no Practicable Alternative to wetland modification exists, and that the proposed Development 	
		draining, excavating,			15-30.A The Development is:	
		impoundment, and			or Buffers;	
		through some			Wetland or Buffer is impacted and mitigated, unless Mitigation is provided by	
		avoidance and mitigation			for Development Affecting Wetlands 15-86.A Development affecting Wetlands may not occur without Certification,	
		to Army Corps of Engineer			15-86.B Development proposing to affect Critical Wetlands must demonstrate through an Alternatives Analysis that the presence of Critical Wetlands	
					Development Purpose. If the impact is determined to be allowable, the impacted area shall be mitigated in accordance with Section 15-88. 15-86.C Development proposing to affect a Regulatory Wetland must	
					demonstrate through an Alternatives Analysis that the proposed Development represents the least damaging alternative while still achieving the Basic	
					Development Purpose. If the impact is determined to be allowable, the impacted area shall be mitigated in accordance with Section 15-88.; 15-87. Indirect Impacts to Wetlands	
					15-87.A The Applicant must demonstrate that the Development or hydraulic alteration will not cause an Indirect Wetland Impact unless one of the following exceptions apply:	
					15-87.A.1 The Wetlands occur at or below the OHWM of a waterway on which the hydraulics will not be changed; or,	
					15-87.A.2 The Development is a streambank stabilization project; or, 15-87.A.3 The Director of Administrator in a Complete Waiver Community concurs that there is no potential for adverse impact.	
3	Modification - high quality	Prohibit the modification of high quality, irreplaceable	No			There is a high bar for impacting high
	resources	wetlands, lakes, and stream corridors?				quality wetlands, but it



					is not prohibited.
4 Modifica - wetlan	U	yes	Stormwater Ordinance 15- 86.C.1.e; 15-87	 15-86.C.1 The Director, or Administrator in a Complete Waiver Community, shall waive the requirement for completion of a Alternatives Analysis or the need to provide wetland Mitigation for Developments proposing, in the aggregate, 0.10 acre or less Direct Impact to Wetlands provided: 15-86.C.1.e. There will be no indirect impacts to remaining wetland area(s), 15-87. Indirect Impacts to Wetlands 15-87.A The Applicant must demonstrate that the Development or hydraulic alteration will not cause an Indirect Wetland Impact unless one of the following exceptions apply: 15-87.A.1 The Wetlands occur at or below the OHWM of a waterway on which the hydraulics will not be changed; or, 15-87.A.2 The Development is a streambank stabilization project; or, 15-87.A.3 The Director of Administrator in a Complete Waiver Community concurs that there is no potential for adverse impact. 15-87.B.4 Development or hydraulic alteration is considered to have an indirect impact if one of the following limitations are exceeded: 15-87.B.4 Development or hydraulic alteration is considered to have an indirect impact if one of the following limitations are exceeded: 15-87.B.2 Changes in the wetland's draw down time resulting in an increase or decrease of greater than 48 hours from the peak elevation to the normal water level. The draw down times must be calculated for the 2.03 inch, 2.51 inch, and 3.04 inch, twenty-four (24) hour rainfall events; or 15-87.B.3 An increase in the duration of inundation of more than 20% from existing to proposed conditions for the 5.51 and 7.58 inch, twenty-four (24) hour rainfall event. A minimum increase of 48 hours is allowed for these storm events. 15-87.B.4 The Director, or Administrator in a Complete Waiver Community, can based on a review of the submitted information, determine that proposed impacts outside of the above limits will not affect the existing plant communities, and therefore, would be allowable. 	



5	Waterbody	Designate a minimum	No			Critical
	setback	100 foot setback zone				wetlands have
		from the edge of				a buffer of 100
		identified wetlands				feet, regulatory
		and water bodies in				wetlands have
		which development is				a buffer of 50
		limited to the				feet. Buffers
		following types of				may be
		activities: minor				impacted with
		improvements like				replacement of
		walkways and signs,				function.
		maintenance of				
		highways and				
		utilities, and park and				
		recreational area				
		development?				
6	Waterbody	Establish a minimum	Mostly	Stormwater	ARTICLE XII. BUFFERS	Wetlands have
	buffer	25-foot wide		Ordinance Article 12	15-92. Identification of Buffers	a minimum
		protected native			15-92.A Buffer areas for Wetlands shall extend from the edge of the delineated	buffer of 25
		vegetation buffer strip			wetland. Buffer for those portions of non-wetland Waters of DuPage shall	feet,
		along the edge of			extend from the Ordinary High Water Mark (OHWM):	waterways
		identified wetlands			15-92.A.1 A property may contain a Buffer area that originates from another	without
		and water bodies?			property.	wetland or
					15-92.A.2 Buffer widths for wetland shall be as follows:	floodplain
					15-92.A.2.a. One hundred (100) feet for Critical Wetlands, except as noted in	have a
					Section 15-92.B.2.	minimum
					15-92.A.2.b. Fifty (50) feet for Regulatory Wetlands, except as noted in Section	buffer of 15
					15-92.B.2.	feet. Vegetated
					15-92.B Buffer for non-wetland Waters of DuPage shall be a minimum width of	floodplain that
					fifteen (15) feet and a maximum width matching the Regulatory Flood Plain.	is not turf is a
					Width shall be determined as follows for the following situations:	buffer. Buffers
					15-92.B.1.a. Where there is no Regulatory Flood Plain study, and the drainage	may be
					area is over one hundred (100) acres, then the required site specific BFE study	impacted with
1					in Section 15-80 will define a 100-yr Flood elevation for the site and that	replacement of
					elevation shall be used to set the Buffer width, except as noted in Section 15-	function.
					92.B.2.	
					(continued on next page)	

				15-92.B.1.b. Waters of DuPage which have a drainage area of less than one hundred (100) acres and no Flood study has been performed will have a Buffer of fifteen (15) feet from the OHWM, except as noted in Section 15-92.B.2. 15-92.B.1.c. For purposes of regulation under this Ordinance, the Applicant may choose to accept the 100-year Flood Plain limit as the Buffer, or he may submit documentation addressing the Buffer functions and request that a narrower Buffer limit between the 100-year Flood Plain and one hundred (100) feet from OHWM should be allowed by the Administrator in a Complete Waiver Community or the Director, in accordance with 15-94.B. 15-92.B.2 Buffer does not include impervious non-vegetated surfaces, permanent Structures or Buildings. In addition, non-wetland Waters of DuPage County Buffer does not include maintained lawn or associated maintained landscape plantings within the limits of the 100 year Flood Plain that are more than fifty (50) feet from the limits of the waters	
7	Relocation	Prohibit watercourse relocation or modification except to remedy existing erosion problems, restore natural habitat conditions, or to accommodate necessary utility crossings; and require mitigation of unavoidable adverse water quality and aquatic habitat impacts?	No		



8	Restoration	Encourage the restoration of stream and wetland habitat,	yes	Stormwater Ordinance 15- 63.A.4; 15-72.C.3.;	15-63. PCBMPs are required to treat the stormwater runoff for pollutants of concern and reduce Runoff volume for all Developments, with the exceptions and exclusions noted below. Upon a documented finding by the Director or
		hydrology, and morphology on		15-88.B.3.; 15-86.E; 15-88.E.; 15-94.A.1;	Administrator that providing PCBMPs is impractical, then the appropriate PCBMP fee-in-lieu shall be paid by the Applicant in lieu of providing full or
		development sites		Streambank	partial PCBMPs.
		that contain degraded		Restoration General	15-63.A PCBMPs are waived for the following Developments: 15-63.A.4 The
		aquatic systems?		Certification	Development is a stream bank stabilization, natural area restoration, or
		(This could be			Wetlands Mitigation bank Development, or off-site wetland Mitigation which
		accomplished			in itself is considered a PCBMP
		through a streamlined			15-72.C The following "Special Cases of Development" are not required to
		permitting process			provide Site Runoff Storage or "Site Runoff Storage, Special":
		and/or other			15-72.C.1 Bridge and culvert modification, repair, and replacement
		development			Developments; or
		incentives.)			15-72.C.2 Streambank stabilization Developments; or
					15-72.C.3 Natural area restoration Developments; or
					15-72.C.4 Wetland Mitigation sites and wetland Mitigation banks; 15-88.B.3
					Natural area restoration Developments shall provide wetland Mitigation for
					Permanent Wetland Impacts at a minimum proportional rate of one to one
					(1:1). 15-86.E Vegetative Maintenance within wetland may be allowed through
					issuance of a Letter of Permission under the following conditions. A written
					description of the Development goals, objectives, and management plan must
					be provided for approval to the Director or Administrator of a Waiver
					Community. As long as the Development does not require Stormwater
					Management Certification for any other aspect of the Development, the
					Director or Administrator of a Waiver Community may issue a Letter of
					Permission to allow the Maintenance activity. 15-94.A Vegetative Maintenance
					within Buffer may be allowed through issuance of a Letter of Permission under
					the following conditions:
					15-94.A.1 A written description of the Development goals, objectives, and
					management plan must be provided for approval to the Director, or
					Administrator in a Waiver Community. As long as the Development does not
					require Stormwater Management Certification for any other aspect of the
					Development, the Director or Administrator of a Waiver Community may issue
					a Letter of Permission to allow the Maintenance activity.
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NaturalCode andAreas &standardOpen Spacecategory	standard	Checklist question	Yes/No <i>or</i> Mostly/ Minimally	Code section	Current standard text (optional)	Notes/ Comments
		Does the ordinance	Addressed			
1	Natural areas protection	Protect remnant natural areas, including steep slopes, prairies, woodlands, and savannas (in addition to regulated wetlands and floodplains)?	No			
2	Open space - amount	Set aside onsite open space for residential development, generally conforming to the following guidelines: estate residential: 60%; moderate residential: 45%; urban residential: 30%? (Common open space is preferable, but deed-restricted open space also is acceptable.)	Yes	SEC. 31 409/ 2. Criteria for Requiring Park Land & Recreational Land Dedication	Zoning: Sec. 31-409.2. For any subdivision not in park district or township specified in Subsection A.1. of this section, if the land which the subdivider would be required to dedicate meets any of the minimum size ranges stated in Subsection B.1. of this section, the County may require the subdivider to provide land for and establish a recreational area or areas corresponding to such size ranges in listed below. The establishment of such a recreational area or areas shall be credited against the required donation to the Forest Preserve District of DuPage County. Provisions shall be made for a compulsory homeowners' association or some other means of assuring that the land will be maintained and preserved, in perpetuity, for the intended purposes. Articles of agreement for a homeowners' association or any other necessary documents shall be approved by the Plat Committee and recorded with the final plat, with a notation on the plat referring to any such documents.	Requirement is based on minimum acres per 1,000 people
3	Restoration	Encourage the restoration of protected natural areas to reduce invasive species and enhance biodiversity?	Yes	Stormwater Ordinance: 15-86.E; 15-88.B.3; 15-94.A.1; 15-48.C.4	15-86.E Vegetative Maintenance within wetland may be allowed through issuance of a Letter of Permission under the following conditions. A written description of the Development goals, objectives, and management plan must be provided for approval to the Director or Administrator of a Waiver Community. As long as the Development does not require Stormwater Management Certification for any other aspect of the Development, the Director or Administrator of a Waiver Community may issue a Letter of Permission to allow the Maintenance activity.; 15-88.B.3 Natural area restoration Developments shall provide wetland Mitigation for Permanent Wetland Impacts at a minimum proportional rate of one to one (1:1). 15-94.A Vegetative Maintenance within Buffer may be allowed through issuance of a Letter of Permission under the following conditions:	In buffers or when restoration is credit for impacts to a protected area.

				 15-94.A.1 A written description of the Development goals, objectives, and management plan must be provided for approval to the Director, or Administrator in a Waiver Community. As long as the Development does not require Stormwater Management Certification for any other aspect of the Development, the Director or Administrator of a Waiver Community may issue a Letter of Permission to allow the Maintenance activity.; 15-48.C.6 Wetland and Buffer Mitigation plan, if applicable, shall contain the following information: 15-48.C.6.a. Delineate and label planting and seeding zones. 15-48.C.6.b. Delineate and label Mitigation and enhancement zones. 15-48.C.6.c. Existing and proposed topography. 15-48.C.6.d. Planting methodology and soil handling. 15-48.C.6.f. Native species list including size of stock, quantity, seed rate, and spacing of plugs. 15-48.C.6.h. Signage or physical barrier locations. 15-48.C.6.i. Monitoring well locations, if installed. 15-48.C.6.j. Permanent transect locations and photo-documentation points for monitoring, if required. 15-48.C.6.k. Maintenance and monitoring plan with Performance Standards. 	
4	Open space - ownership	Require the identification of an open space ownership entity, with a preference for a qualified public or private land conservation organization?	No		
5	Open space - easement	Require the dedication of natural open space via a binding conservation easement or similar binding legal instrument that ensures protection in perpetuity?	No		

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6	Open space -	Require secure and	No		
	management	permanent funding			
		arrangements for the			
		long-term			
		management and			
		maintenance of open			
		space, natural areas,			
		and stormwater			
		facilities once			
		responsibilities are			
		turned over to a			
		conservation entity or			
		the homeowners/			
		property owners			
		association? (Said			
		funding arrangements			
		shall be noted and			
		made part of the			
		Covenants and			
		Restrictions.)			
7	Open space -	Encourage the	No		
	funding	establishment of a			
	0	back-up special			
		service area (SSA) in			
		order to provide			
		funds necessary to			
		support the			
		maintenance of open			
		space and stormwater			
		management areas (in			
		the event that the			
		responsible land			
		owner/manager does			
		not meet the required			
		maintenance			
		standards)?			
8	Open space -	Require or encourage	No		
	management	long-term			
	plans	management/			
	Pians	stewardship plans for			
		all common open			
		space areas, natural			
1		space areas, natural			



		areas, and stormwater facilities?				
9	Open space - performance criteria	Establish measurable performance criteria for managed natural areas, including ground coverage, species diversity, and control of invasive species?	mostly	Stormwater Ordinance: 15- 48.C.4.f; 15-54.D; 15- 88.B.6; 15-88.D; 15- 106. B.3; Definitions: Performance Standards; BMP Manual	15-48.C.4 Development narrative shall include the following applicable items: 15-48.C.4.f. Performance Standards.; 15-54.D Natural Area Restoration, Wetland and Buffer Mitigation Area Security 15-54.D.1 Natural area restoration or wetland and Buffer Mitigation area security, in accordance with Section 15-40.D.3 shall be posted and shall include: 15-54.D.1.a. A schedule, agreed upon by the Developer and the Director or the Administrator, for the completion of a natural area restoration Development or completion of wetland or Buffer Mitigation Development; and 15-54.D.1.b. An irrevocable letter of credit, or other such adequate security as the Director or the Administrator may approve, in an amount equal to, not less than, one hundred ten percent (110%) of the estimated probable cost to plant, maintain and monitor all vegetated areas and/or complete the restoration or Mitigation Development for the agreed upon maintenance and monitoring period as required by the Certification. The estimated probable cost shall be approved by the Director or the Administrator; 15-88.B.6 In order to be eligible for credit, the Mitigation must meet the Performance Standards referenced by the Stormwater Management Certification.; A restoration and/or Mitigation plan for the impacted area setting forth Performance Standards, management and monitoring requirements as necessary, and implementation schedule.	Short term for wetland, floodplain, BMP and detention development. Long term management is encouraged by allowing existing BMPs in good condition to be used for new development under certain conditions.
Conserva- tion Design & Infill	Code and standard category	Checklist question	Yes/No <i>or</i> Mostly/ Minimally	Code section	Current standard text (optional)	Notes/ Comments
	0 5					
		Does the ordinance	Addressed			
1	Natural Resource Inventory	Does the ordinance Require a site analysis map that includes a natural resources inventory at the Concept Plan stage or prior to the Preliminary Plan stage?	Addressed No			



		vegetation, stabilize soils during		Code) 8-128.2. and 3.; 8-129.1.2-6.	County are identified in Section 15-5.B.; 15-87. Indirect Impacts to Wetlands 15-87.A The Applicant must demonstrate that the Development or hydraulic	Building Code applies, as well
		construction, and			alteration will not cause an Indirect Wetland Impact unless one of the following	as guidance in
		protect, enhance, and			exceptions apply:	the BMP
		maintain natural			15-87.A.1 The Wetlands occur at or below the OHWM of a waterway on which	Manual.
		resources (such as			the hydraulics will not be changed; or,	
		remnant woodlands,			15-87.A.2 The Development is a streambank stabilization project; or,	
		prairies, and steep			15-87.A.3 The Director of Administrator in a Complete Waiver Community	
		slopes)?			concurs that there is no potential for adverse impact.	
					Building Code: 8-128. 2. Sediment and erosion control plan requirements:	
					a. Sedimentation controls for all existing and proposed stormwater structures.	
					b. Erosion control measures designed to protect adjacent properties and public	
					rights-of-way.	
					Such measures to be installed before ground break.	
					c. Erosion control measures designed to protect ditches, swales, and other	
					sloped areas	
					where stormwater velocity can cause erosion.	
					d. Sediment and erosion control provisions for earth stockpiles.	
					3. All lots proposing new principal buildings or structures shall meet all	
					requirements of the Department of Development and Environmental Concerns	
					and the DuPage County Countywide Stormwater and Flood Plain Ordinance.	
					8-129.1. To encourage the preservation of existing trees and other vegetation	
					which are in healthy condition, especially mature plant material and plants	
					indigenous to the region, which are an important element characterizing the	
					high quality of life in the County.	
					3. To encourage the design and location of buildings, parking lots, drainage	
					facilities and other improvements in such a way as to maximize the reservation	
					of existing trees and other desirable vegetation.	
					4. To grant Plant Preservation Credits for existing trees and other desirable	
					vegetation which meet landscaping requirements.	
					5. To regulate the clearing and the disturbing of land during the planning and	
					site development process so as to preserve existing trees and other desirable	
					vegetation when a tree preservation plan has been approved and Plant	
					Preservation Credits have been given.	
					6. To require the use of native vegetation in and around stormwater basins to	
					help filter stormwater runoff, reduce basin erosion and sedimentation, aid in	
					the removal of nutrient and other contaminants from stormwater, and	
					discourage large numbers of nuisance waterfowl in and around stormwater	
					basins.	
3	Clearing and	Restrict on-site	Minimally	BMP Manual		Encouraged in
	Grading	clearing and grading				guidance
	-	locations and extent?				

4	Clustering	Encourage/require clustering of residential lots around sensitive natural areas, thereby creating a protected common open space area?	Minimally	BMP Manual		Encouraged in guidance
5	Density bonus	Provide density bonuses for conservation developments that exceed minimum standards (such as additional open space, providing for regional trails and greenways, or incorporating environmentally sensitive design features beyond what is required by the Ordinance)?	Yes	Chapter 37-302: DEFINITIONS and 37-705.3: LOT REQUIREMENTS: SIZE, WIDTH, AND DEPTH: (R-5 DISTRICT)	 FLOOR AREA RATIO (FAR): The numerical value obtained by dividing the gross floor area of a building or buildings by the total area of the subject lot or parcel of land on which the building or buildings are located. When calculating the floor area ratio of the subject lot or parcel of land include any other lot or parcel of land that meets all of the following criteria: A. The lot or parcel of land that was previously part of the subject lot or parcel of land and was severed from the subject lot or parcel of land by condemnation proceeding: and B. The severed lot or parcel of land is preserved as open space in perpetuity by the condemning authority; and C. The condemning authority agrees to transfer the floor area ratio gross density on the severed lot or parcel of land as part of writing in the condemnation proceedings and subsequent to any proceedings transfers the floor area gross density to the subject property. A. Where a property owner/developer elects to provide for the construction of housing which is affordable to low and moderate income families, a density bonus shall be provided allowing an increase of one dwelling unit for each low and moderate income unit so provided, which increase shall not be greater than twenty five percent (25%) of the number of dwelling units permitted as determined by the actual area of the zoning lot without bonuses or conditional uses. All bonus dwelling units so awarded shall be constructed as an integral part of the development upon each zoning lot withere permitted, and shall comply with all requirements and guidelines of the United States department of housing and urban development for construction, operation and maintenance of low and moderate income housing. A unit affordable to low and moderate income families is defined as one provided through the federal "section 8 program" or equivalent federal program where assistance remains with the unit for a minimum period of twenty (20) years 	
6	Conserva- tion design - by right	Allow conservation design as a "by-right" form of development?				

7	Conserva- tion design - zoning map	Does the zoning map indicate areas where conservation development is required?	No			
8	Mixed use	Is there a downtown overlay district or another mechanism to encourage mixed-use development in neighborhood centers?	By community			
9	Impact fees	Are there reduced impact fees or other incentives to encourage infill development?	No			
Landscaping	Code and standard category	Checklist question Does the ordinance	Yes/No <i>or</i> Mostly/ Minimally Addressed	Code section	Current standard text (optional)	Notes/ Comments
1	Native landscaping - restrictive provisions	Include "noxious weed" provisions that might intentionally, or unintentionally, preclude natural landscaping because of vegetation height standards or similar restrictive provisions?	No			



	NT /	E ()	A (* * 11			TT1 1 1 1
2	Native	Encourage/require	Minimally	Stormwater	15-64. Post Construction Best Management Practices Design Criteria.	Floodplain,
	landscaping	the use of native plant		Ordinance 16-64.A.2	15-64.A PCBMPs shall provide volume and pollutant control using one of the	wetland,
	- common &	materials for the		and A.3; 15-88.I. and	following practices:	buffer,
	natural areas	default landscaping of		J; 15-94.B and C;	15-64.A.2 Native vegetated wetland bottom site runoff storage basin; or	naturalized
		common areas,		BMP Manual	15-64.A.3 PCBMPs not constructed pursuant to Sections 15-64.A.1 or 15-64.A.2	detention,
		stormwater facilities,			shall be constructed in accordance with 15-64.C.; 15-88.I. Wetland Mitigation	certain BMPs
		common open space			areas shall incorporate native, non-invasive species and be designed to	
		areas, and the buffers			duplicate or improve the hydrologic and biologic function of the original	
		of streams, lakes,			wetland.; 15-94.B Development of Buffer, or a reduction in width, function, or	
		wetlands and other			the removal of Native Vegetation, shall not occur without Mitigation.	
		natural areas?			15-94.B.1 Mitigation for Buffer impact does not require one for one replacement	
					of the area impacted. Replacement of impacted function takes precedent over	
					replacement of area.	
					15-94.B.2 Impacts to Buffers shall consider the effectiveness of the natural	
					functions and mitigate those functions to the extent practicable.	
					15-94.C Buffer Mitigation design shall incorporate native, non-invasive species	
					and be designed to duplicate or improve the hydrologic and biologic function	
					of the original Buffer unless documentation is provided to support	
					establishment of alternative communities. When native plantings are required	
					as part of a Mitigation Development, the plantings shall be native to	
					Northeastern Illinois as defined by Plants of the Chicago Region.	
3	Native	Require provisions for	Yes	Building Code 8-129		
	landscaping	long-term oversight,		_		
	-	management,				
	management	funding, and perfor-				
		mance criteria for				
		common areas and				
		natural landscapes (as				
		referenced above in				
		greater detail)?				
		greater uetail):				
4	Street trees	Require planting	Yes	Chapter 31 SEC: 502.	2 per lot	
		street trees? If yes,		OTHER IMPROVE-		
		how many trees?		MENTS (4) (Trees)		
		2		,		



5	Tree protection	Require protection of native/desirable trees (i.e., a tree protection ordinance)?	Minimally	Stormwater Ordinance 16- 64.A.2; 15-88.I. and J; 15-94.B and C; BMP Manual	 15-64. Post Construction Best Management Practices Design Criteria. 15-64. A PCBMPs shall provide volume and pollutant control using one of the following practices: 15-64. A.2 Native vegetated wetland bottom site runoff storage basin; 15-88.I Wetland Mitigation areas shall incorporate native, non-invasive species and be designed to duplicate or improve the hydrologic and biologic function of the original wetland. 15-88.J A native Buffer is required to protect the Mitigation adjacent to Critical Wetlands and 50' adjacent to Regulatory Wetlands, unless the Director or Administrator concludes otherwise. 15-94.B Development of Buffer, or a reduction in width, function, or the removal of Native Vegetation, shall not occur without Mitigation. 15-94.B.1 Mitigation for Buffer impact does not require one for one replacement of the area impacted. Replacement of impacted function takes precedent over replacement of area. 	Floodplain, wetland, buffer, naturalized detention, certain BMPs
					 15-94.B.2 Impacts to Buffers shall consider the effectiveness of the natural functions and mitigate those functions to the extent practicable. 15-94.C Buffer Mitigation design shall incorporate native, non-invasive species and be designed to duplicate or improve the hydrologic and biologic function of the original Buffer unless documentation is provided to support establishment of alternative communities. When native plantings are required as part of a Mitigation Development, the plantings shall be native to Northeastern Illinois as defined by Plants of the Chicago Region. 	
6	Tree replacement	Require replacement of any trees that are unavoidably impac- ted by construction activities?	No			
7	Tree replacement - funding	Require payment into a tree replacement fund or "mitigation bank" when removed trees cannot be replaced/mitigated on site?	No			



Transporta- tion	Code and standard category	Checklist question Does the ordinance	Yes/No or Mostly/ Minimally Addressed	Code section	Current standard text (optional)	Notes/ Comments
1	Street network - location	Require the street network to minimize encroachment in sensitive natural resources and take advantage of open space vistas, while providing an interconnection of internal streets and street connections to adjoining land parcels to create opportunities for future connectivity?	No		Policy	Encouraged in Department of Transportation policy and guidance
2	Street network - stream crossings	Limit stream crossings by the street network?	No		Policy	Encouraged in Department of Transportation policy and guidance
3	Street connectivity - external	Require connections to surrounding areas?	No		Policy	Encouraged in Department of Transportation policy and guidance
4	Street connectivity - internal	Require subdivisions to achieve a certain score on an index for internal street connectivity?	No			0
5	Street - widths	Encourage narrower street widths to reduce the amount of impervious surface?	No			
6	Street - frontage roads	Discourage frontage roads?	No			



7	Street -	Encourage reduced or	No			
	length	flexible lot widths to				
		reduce impervious-				
		ness and street				
		length?				
8	Cul-de-sacs	Discourage cul-de-	No			
		sacs and promote				
		smaller scale design?				
9	Curb and	Encourage/require the	No			
	gutter	use of natural				
	require-	drainage practices?				
	ments					
10	Paving	Promote use of	No			
	materials -	pervious materials?				
	streets					
11	Sidewalks	Promote connected	Minimally		Policy	Connecting
		sidewalks in new	2			sidewalks is
		developments and				encouraged in
		use of pervious				Department of
		materials?				Transportation
						policy and
						guidance.
	Code and		Yes/No or			
Parking	standard	Checklist question	Mostly/	Code section	Current stan david tout (ontional)	Notes/
rarking			Minimally	Code section	Current standard text (optional)	Comments
	category	Does the ordinance	Addressed			
1	Purpose	Does the purpose	Yes	Chapter 37	Peak demand for as of right development and day to day operational demand	
1	1 urpose	include a statement	105	ARTICLE XII. OFF	for certain types of uses including place of assembly uses and principal arterial	
		about tailoring		STREET PARKING	uses	
		parking requirements		AND LOADING	4365	
		to meet average day-		REQUIREMENTS		
		to-day demand as		REQUIREMENTS		
		opposed to peak				
		demand?				
2	Applicability	Apply off-street	No	Chapter 37	Requires parking per use group and operations thereto	
4	Applicability	parking requirements	110	ARTICLE XII. OFF	requires parking per use group and operations mereto	
		only to parcels of a		STREET PARKING		
		certain size or		AND LOADING		
		greater?		REQUIREMENTS		
		greater:		REQUIREMENTS	1	

3	Require- ments	Establish parking requirements as a maximum?	Yes	Chapter 37 ARTICLE XII./1-8	Principal Arterial Office Uses- Minimum and maximum three (3 spaces per 1,000 square feet of office space within the dwelling unit)
4	Parking ratio - office	Require a parking ratio for a professional office building that is 3 spaces, or less, per 1,000 square feet?	Yes	Chapter 37 ARTICLE XII./1-8 and 6-7	Principal Arterial Office Uses- Minimum and maximum three (3 spaces per 1,000 square feet of office space within the dwelling unit)Office, Business, Professional & Governmental, excluding Medical/Dental/ Three (3) parking spaces per each 1,000 square feet of gross floor area.
5	Parking ratio - retail	Require a parking ratio for retail that is 4.5 spaces, or less, per 1,000 square feet?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS CATEGORY NUMBER 6 BUSINESS USES/RETAIL	Four (4) parking spaces per each 1,000 square feet of gross floor area.
6	Parking ratio - residential	Require a parking ratio for a single family home that is 2 spaces, or less?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS CATEGORY NUMBER 1 DWELLINGS	1 1 Dwelling, Single Family Detached Separate living quarters, domestic Servants Two (2) parking space per each dwelling unit
7	Require- ments - flexibility	Provide flexibility regarding alternative, reduced parking requirements (e.g., shared parking, off- site parking) and discourage over- parking of developments?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS (K) Exceptions	K. Exceptions: All required off street parking spaces and their appurtenant aisles and driveways (size of space and aisles) shall be provided on the same lot as the use for which the parking is provided. Areas provided for off street parking spaces shall not be encroached upon or reduced in any manner except upon the granting of an exception by the county development committee of the county board. Exceptions may be granted in the following instances: 1. Shared Ride/Car Pooling Programs: Increasing the number of passengers per motor vehicle, decreases parking demand, e.g., employer sponsored van pooling, car pooling and subscription bus service. Utilization of these programs may warrant a reduction of required parking. (continued on next page)

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	To qualify for van pooling, car pooling or subscription bus service, the
	petitioner shall submit evidence to the county development committee of the
	county board that their van pooling, car pooling or subscription bus service
	program meets the requirements of this chapter.
	a. Shared Ride/Subscription Bus Service Program: An exception to reduce
	required parking by up to ten percent (10%), based on substantiated projections
	reducing parking demand, may be granted for any business, office or industrial
	building or complex containing not less than fifty thousand (50,000) square feet
	of gross floor area, where the petitioner has instituted or proposes to institute a
	shared ride/subscription bus service program which meets the following
	requirements:
	(1) The petitioner is participating or shall participate in an appropriate van
	pooling/subscription bus service program established under the provisions of
	the county board of DuPage County.
	(2) Petitioner will obtain for lease to qualified employees, vans, buses, or other
	high passenger capacity vehicles, for the purpose of providing transportation of
	additional passengers.
	(3) Petitioner will operate or hire vans, buses or other high passenger capacity
	vehicles to provide exclusive or nonexclusive commuter transportation of
	employees from residential areas, train stations or other transit terminals.
	(4) Petitioner shall promote "third party" employee owned/leased and operated
	vans, buses or other high passenger capacity vehicle for the purpose of
	providing transportation of additional passengers.
	b. Car Pooling Program: An exception to reduce required parking by up to ten
	percent (10%), based on substantiated projections reducing parking demand,
	may be granted for any business, office or industrial building or complex
	containing not less than fifty thousand (50,000) square feet of gross floor area,
	when the petitioner has instituted or proposed to institute a car pooling
	program which meets the following requirements:
	(1) Car pooling program shall be the specific responsibility of a designated
	individual or department.
	(2) Program shall provide an active matching service using manual or
	automated matching of addresses and providing employees with potential car
	pools (passive matching alone such as bulletin boards is not acceptable).
	(3) Program shall endeavor to register all existing and all new employees.
	(4) Program shall actively promote car pooling to employees through
	newsletter posters and other media.
	2. Transit Facilities: The availability of rapid rail and scheduled bus service can
	decrease the parking demand in certain instances. To qualify for permissible
	reductions in parking space requirements because of close proximity to transit
	rail or bus transit services, the Petitioner shall submit evidence to the county
	development committee of the county board that their business location meets
	the general guidelines of DuPage County as follows:
	the general guidelines of Durage County as follows:

					 a. An exception to reduce required parking by up to ten percent (10%) based on substantiated projections (ridership) reducing parking demand, may be granted for any residential subdivision or planned development of ten (10) dwelling units or more, office, business or industrial building or complex located within one-half (1/2) mile of any commuter rail station or other recognized transit station. b. An exception to reduce required parking by up to five percent (5%) based on substantiated projections (ridership) reducing parking demand, may be granted for any residential subdivision or planned development of ten (10) dwelling units or more office, business or industrial building or complex located within one-quarter (1/4) mile of any regularly scheduled bus route with service during peak commuting hours. 3. Reserved Land Area For Parking: All business, office or industrial buildings or complexes containing not less than fifty thousand (50,000) square feet of gross floor area where the petitioner is considering instituting shared ride/subscription bus service programs and/or car pooling program shall reserve adequate land area consistent to the requirements of this chapter to provide for the required off street parking in case any one of the above programs or any other similar programs ceases to operate. (2005 Code) 	
8	Requirement s - flexibility	Allow a reduction in the number of current parking spaces?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS (K)	" above	
9	Off-site parking	Provide flexibility regarding alternative, reduced parking requirements (e.g., shared parking, off- site parking) and discourage over- parking of developments?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS (K) and; C. Control Of Off Site Parking Facilities/ G. Collective Provision: Off street parking facilities	" above and C. Control Of Off Site Parking Facilities: In cases where required offsite parking facilities are permitted on land other than the zoning lot on which the building or use served is located, such facilities shall be in the same ownership or possession as the zoning lot occupied by the building or use to which the parking facilities are accessory. Such ownership or possession may be either by deed or other instrument, the term of such instrument to be determined by the county board, subject to a minimum of thirty (30) years. and G. Collective Provision: Off street parking facilities for separate uses may be provided collectively if the total number of spaces is not less than the sum of the separate requirements for each such use for those uses that have the same or overlapping hours of operation. For those uses which have different hours of operation with no overlap, the number of parking spaces shall be equal to the greatest requirement of any group of uses in operation at the same time. The director, department of economic development and planning, shall have the discretion to determine when such reduction in required parking is justified based on appropriate documentation.	

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10	Shared	Provide flexibility	Yes	Chapter 37	" above
	parking	regarding alternative,		ARTICLE XII. OFF	
		reduced parking		STREET PARKING	
		requirements (e.g.,		AND LOADING	
		shared parking, off-		REQUIREMENTS	
		site parking) and		(K) and; C. Control	
		discourage over-		Of Off Site Parking	
		parking of		Facilities/ G.	
		developments?		Collective Provision:	
				Off street parking	
				facilities	
11	Requirement	Provide for uses in	Yes	Chapter 37	"above
	s - location	downtown areas by		ARTICLE XII. OFF	
		reducing or not		STREET PARKING	
		requiring parking		AND LOADING	
		given the walkable,		REQUIREMENTS	
		transit-served		(K) and; C. Control	
		location?		Of Off Site Parking	
				Facilities/G.	
				Collective Provision:	
				Off street parking	
				facilities	
12	Credits - on-	Allow a reduction in	Yes	Chapter 37	"above
	street	off street parking		ARTICLE XII. OFF	
	parking	requirements when		STREET PARKING	
	1 0	nearby on street		AND LOADING	
		parking is available?		REQUIREMENTS	
		1. 0		(K) and; C. Control	
				Of Off Site Parking	
				Facilities/ G.	
				Collective Provision:	
				Off street parking	
				facilities	
13	Credits -	Allow a reduction in	Yes	Chapter 37	" above
	bicycle	off street parking		ARTICLE XII. OFF	
	parking	requirements when		STREET PARKING	
	runni6	bicycle parking is		AND LOADING	
		provided?		REQUIREMENTS	
		Provided.		(K) and; C. Control	
				Of Off Site Parking	
				Facilities/ G.	
				Collective Provision:	
L		1		Conective Frovision:	



				Off street parking facilities	
14	Size - parking stall	Require parking stalls to be less than or equal to 9 feet x 18 feet?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS D. Size And Configuration	 Where the public safety or public convenience would be better served, the director, department of economic development and planning, acting upon a specific application, may authorize modifications in all zoning districts for nonresidential and nonsingle-family residential uses as follows: 1. Compact car facilities where allowed shall be limited to twenty five percent (25%) of the spaces required for the site. 2. The minimum stall size for compact car facilities shall be not less than eight and one-half feet (8.5') in width and not less than fifteen feet (15') in depth. 3. All compact car facilities (areas) shall be appropriately marked by signs designating those spaces as "For Compact Cars Only".
15	Size - parking stall	Allow for reduction in parking stall size to account for vehicle overhang onto landscaped islands or perimeter landscaping? (eg., such flexibility might allow for an 18-foot deep stall to be reduced to 16 or 16.5 feet deep.)	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS D. Size And Configuration	" above
16	Size- compact stalls	Specify that a percentage of all parking stalls can be dedicated for compact cars, with correspondingly smaller stall dimensions?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS D. Size And Configuration	" above
17	Size - parking aisles	Establish narrower aisle widths to minimize impervious surfaces?	Yes	Chapter SEC. 31 400. STREETS	Half streets shall be avoided, except where absolutely essential to the reasonable development of the subdivision in conformity with the other requirements of these regulations, and where the Plat Committee finds it will be practical to require a dedication of the other half when the adjoining property is developed. Where a dedicated or platted and recorded half street exists, adjacent to the tract to be subdivided, the other portion shall be platted.



18	Driveways - width – nonresident- tial	Encourage/require reduced driveway widths?	Yes	Chapter SEC. 31 400. STREETS h	h. Upon the recommendation of the Plat Committee, private streets may be permitted. Such streets shall provide a permanent street easement width of fifty (50) feet, with a ten (10) foot roadway, drainage and utility easement provided on each side. Such streets shall have access only to a dedicated street and shall be constructed in accordance with ARTICLE V IMPROVEMENTS, (See Sec.31 500, Streets). Private streets shall be subject to inspections at appropriate intervals by a Registered Professional Engineer as approved by the DuPage County Highway Department and the Township Highway Commissioner with inspection costs of same to be borne by the subdivider.
19	Driveways - width - residential	Encourage/require reduced driveway widths for single- family developments?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS F. Access:	Access to parking areas along collector/arterial streets shall be designed, located and controlled pursuant to the arterial highway development policies and standards for DuPage County, adopted by resolution of the county board. /All areas providing for off street parking facilities shall open directly upon an aisle or driveway not less than nine feet (9') wide for single-family, and twelve feet (12') wide for all others, or such additional width and design as shown in the "off street parking chart", section 37-1204 of this chapter. Where there are practical difficulties; where public safety convenience would be better served; or where due cause is shown, modification may be granted by the director, department of economic development
20	Driveways - length	reduced front setbacks to limit the length (and thus impervious surface) associated with a driveway?	No		
21	Driveways - shared	Encourage/require shared driveways?	Yes	Chapter 31 Sec. 400. STREETS G	(5) A forty (40) foot access to interior lots, shall be dedicated and marked as a private easement for access to interior lots, with only one (1) permitted entrance to the dedicated street.
22	Paving materials	Promote use of pervious materials for paved areas, including parking lots and driveways?	Yes	Stormwater Ordinance 15-64; BMP Manual	

23	Landscaping - amount	Specify a minimum percentage of perivous landscaping in parking lots?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS 9. Screening and Landscaping	ten thousand (10,000) square feet or more, a minimum of ten percent (10%) of such area shall be landscaped to create visual relief. This landscaping shall be required in addition to any other landscaping required under this chapter and shall be established to break (soften) the expanse of paving being located throughout the paved area. Landscaped areas shall not be planted so that there is any interference with required parking spaces.	
24	Landscaping - design	Encourage/require the use of recessed landscape islands (vs. raised islands) to facilitate infiltration and filtering of parking lot runoff?	Yes	Chapter 37 ARTICLE XII. OFF STREET PARKING AND LOADING REQUIREMENTS 9. Screening and Landscaping	" above	
Water Efficiency & Conserva- tion	Code and standard category	Checklist question Does the ordinance	Yes/No <i>or</i> Mostly/ Minimally Addressed	Code section	Current standard text (optional)	Notes/ Comments
1	Water conservation - indoor	Encourage plumbing fixtures and fittings and appliances in all new and remodeled construction to not exceed specific flow rates and must be a labeled Water Sense product if available?	yes	Building Code Article 4, 8-400.d; DuPage County Water Supply, Distribution, and Waste Water Treatment Ordinance, 2015 (DPC Water and WWT): 36-347	 Building: 8-400.d. Pursuant to 17 ILL. Admin. Code 3730.307(c) (4) and subject to the Illinois Plumbing Code (77 ILL. Admin. Code 890) and the Lawn Irrigation Contractor and Lawn Sprinkler System Registration Code (77 ILL. Admin. Code 892), be it hereby ordained that in the County of DuPage all new plumbing fixtures and irrigation controllers installed after the effective date of this ordinance shall bear the WaterSense label (as designated by the U. S. Environmental Protection Agency WaterSense Program), when such labeled fixture are available. WWT Ordinance: Sec. 36-347. WATER CONSERVATION PRACTICES The following water conservation practices shall be implemented in all new construction whenever applicable. Variances from these requirements shall be at the Superintendent's sole discretion: A. Metering of all new construction. B. Metering of existing non-metered services as part of any major remodeling. C. The installation of the following water efficient plumbing fixtures in all new construction and in all repair or replacement of fixtures or trim: Fixtures Maximum Flow Water Closets, tank type 1.6 gal per flush Water Closets, flushometer type 1.6 gal per flush Urinals, flushometer type 1.0 gal per flush Shower Heads 2.5 GPM Lavatory, sink faucets 2.2 GPM 	WaterSense, Irrigation, and plumbing fixtures

	D. The installation of closed system air conditioning in all new construction
	and in all remodeling.
	E. The requirement that all lavatories for public use in new construction or
	remodeling be equipped with metering or self-closing faucets.
	F. The requirement that all newly constructed or remodeled car wash
	installations be equipped with a water recycling system.
	G. Practices must be followed which will restrict non-essential outside water
	uses to prevent excessive, wasteful use. In addition, unrestricted lawn
	sprinkling will not be allowed from May 15 – September 15 of each year.
	Outside watering requirements and restrictions from May 15 – September 15
	shall be as follows or as designated by the Superintendent.
	Outside watering shall not be used on any day between the hours of 10:00 A.M.
	and 7:00 P.M., when evaporation is at its highest. Outside watering will be
	allowed before 10:00 A.M. or after 7:00 P.M., as determined by street number
	and day of the month (odd/even sequence). Odd street addresses may water on
	the odd days of the month and even street addresses may water on the even
	days of the month. New lawns (less than 3 months old) may be exempted from
	this provision upon prior approval from the COUNTY. In addition,
	new/replacement sprinkler systems shall be equipped with a WaterSense
	labeled irrigation controller and shall be in compliance with Section 2.5(g) of
	the Illinois Plumbing License Law [225 ILCS 320]. for the purpose of:
	1. Watering or sprinkling gardens, lawns, trees, shrubs and other outdoor
	plants, except that such restrictions shall not prohibit the watering of newly
	planted gardens, lawns, trees, shrubs and plants with hand held water devices.
	2. Filling swimming pools; and
	3. Pursuant to 17 Ill. Adm. Code 3730.307 (c) 4) and subject to the Illinois
	Plumbing Code (77 Ill. Adm. Code 890) and the Lawn Irrigation Contractor and
	Lawn Sprinkler System Registration Code (77 Ill. Adm. Code 892), all new
	plumbing fixtures and irrigation controllers installed after the effective date of
	this ordinance shall bear the WaterSense label (as designed by the U.S.
	Environmental Protection Agency WaterSense Program), when such labeled
	fixtures are available.
	Any violations of the watering restrictions established by the Superintendent
	shall be punishable by a fine not less than one hundred dollars (\$100.00) nor to
	exceed one thousand dollars (\$1,000) or other remedy available at law or in
	equity (pursuant to authority granted at 55 ILCS 5/5-113 and 5/5-15001, et seq.).
	H. The COUNTY reserves the right to enact any measures required to

2	Water conservation - outdoor	Set guidelines for vegetation (such as limiting turf area and location), minimum topsoil depth, and irrigation equipment, irrigation days and schedules, and irrigation permits?	Minimally	Building Code Article 4 (Energy Code) 8-400.d; DPC Water and WWT: 36-450	Building: 8-400.d. Pursuant to 17 ILL. Admin. Code 3730.307(c) (4) and subject to the Illinois Plumbing Code (77 ILL. Admin. Code 890) and the Lawn Irrigation Contractor and Lawn Sprinkler System Registration Code (77 ILL. Admin. Code 892), be it hereby ordained that in the County of DuPage all new plumbing fixtures and irrigation controllers installed after the effective date of this ordinance shall bear the WaterSense label (as designated by the U. S. Environmental Protection Agency WaterSense Program), when such labeled fixture are available. WWT: ARTICLE 13: LIMITATIONS ON WATER USE Sec. 36-450. PERIOD OF REGULATION The Superintendent may issue a directive limiting water usage when the weather, equipment malfunction, or other conditions limit water supply availability. Under this directive, water from any COUNTY Water Supply and Distribution System, shall be curtailed as specified for noncritical usage. Non-critical usage shall include, but not be limited to: A. Watering or sprinkling gardens, lawns, trees, shrubs, and other outdoor plants, except that such restrictions shall not prohibit the watering of newly planted gardens, lawns, trees, shrubs, and plants with hand held watering devices; and B. Filling swimming pools and ponds; and C. Washing vehicles, houses, trailers, driveways and sidewalks	Watersense, Irrigation, and plumbing fixtures
3	Rainwater harvesting and water reuse	Establish a water reuse model ordinance to encourage preservation of groundwater supplies?	No			
4	Downspouts	Set restrictions on downspouts being directly connected to storm sewers or sanitary sewers?	yes	Building Code: 8- 128.2.A.16; DPC Water and WWT: Article 3, 36-30	Building: 8-128.2.A.16. The location and direction of all proposed sump pump and downspout discharge lines. Sump pump and downspout discharge lines shall be directed to a vegetated swale and shall not directly tie into a storm sewer. This requirement may be waived by the Building Official where the storm sewer discharges directly into an on-site stormwater facility. In all instances, sump pump and downspout discharge lines shall not be directed in a manner that negatively impacts drainage on a neighboring property. The outlet for every sump pump and downspout shall be located at least ten feet (10') from any property line. WWT Ordinance: Sec. 36-30. PROHIBITED CONNECTIONS No connection of roof downspouts, foundation sump pumps or drains, areaway drains, or other sources of surface water or groundwater shall be	



					made to a service sewer or building drain which is connected directly or indirectly to a public sanitary sewer. The discharge from downspouts, foundation sump pumps, drains, areaway drains, or other sources of surface water or ground water shall be directed to an area sufficient to filter such discharge, as required in applicable COUNTY ordinances.	
5	Water waste prevention	Prohibit water waste or inefficient use of water?	No			
6	Water pricing	Establish a conservation pricing structure or other economic incentive to promote water conservation?	No			
Pollution Prevention	Code and standard category	Checklist question	Yes/No <i>or</i> Mostly/ Minimally Addressed	Code section	Current standard text (optional)	Notes/ Comments
		Does the ordinance	Addressed			
1	Ground- water protection	Regulate activities within groundwater protection areas?	Minimally	Stormwater Ordinance 15-63.B; DuPage County Chapter 18 Health Code, Table 1, Minimum Isolation Distances	 15-63.B The following are prohibited from providing on-site infiltration PCBMPs. 15-63.B.1 Fueling and vehicle maintenance areas. 15-63.B.2 Areas within 400 feet of a known Community water system well as specified, or within 100 feet of a known private well, for Runoff infiltrated from commercial, industrial and institutional land uses. The Applicant shall use their best efforts to identify such zones from available information sources, which include the Illinois State Water Survey, IEPA, USEPA, DuPage County Health Department and the local municipality or water agency. 15-63.B.3 Areas where contaminants of concern, as identified by the USEPA or the IEPA prior to Development, are present in the soil through which infiltration would occur. For sites with a No Further Remediation (NFR) letter from the USEPA or IEPA, the Applicant shall determine whether or not structural barriers are part of the Mitigation strategy and account for such measures in the design. 15-63.B.5 Developments over soils with the seasonally high groundwater table within 2 feet of the surface. 	Restricts the use of infiltration BMPs where groundwater could be impacted. Health Code: Restricts distance of some private waste disposal facilities from wells.

2	Phosphorus	Discourage the use of	No	Education and	https://www.dupageco.org/EDP/Stormwater Management/1163/	
-	reduction	phosphorus in	110	Outreach		
		manufactured				
		fertilizers in order to				
		reduce the amount of				
		phosphorus that				
		enters water				
		resources?				
3	Coal tar	Discourage use of	Minimally	MOU among	http://www.downers.us/public/docs/Stormwater %20Management/Resolution	
	sealants	coal tar sealants to	5	DRSCW Agency	%20Signed-%20MOU%20Coal%20Tar%20-%20020315.pdf	
		prevent loss of		Member Public		
		aquatic life?		Works Depts, The		
				County of DuPage,		
				and The DRSCW		
				(Coal Tar Usage)		
				(cour rur couge)		
4	Chloride	Adopt storage and	No	DuPage County	https://www.dupageco.org/EDP/Stormwater Management/Water Quality/119	Applies to
	management	handling ordinances		Resolution EN-6-08	<u>3/</u>	County
		that ensure proper		DuPage County		property
		salt, storage, handling		Environmental		
		and transport?		Responsibility and		
				Conservation Policy;		
				Education and		
				Outreach		
5	Pet waste	Have a pet waste	No	Education and	https://www.dupageco.org/EDP/Stormwater Management/1163/	
	disposal	disposal requirement?		Outreach		
6	Private	Have a private	Yes	DuPage County		
	sewage	sewage treatment and		Chapter 18 Health		
	treatment	disposal ordinance?		Code, Article 18-3:		
	and disposal			Private Sewage		
				Disposal Ordinance		
	I	1	I	1	1	
Thank you!	- 11-11 11 - 1	Duringt Man I	Call Care 1 147	under al Dianau' 11 1		
		Project Manager, Lower S	Sait Creek Wate	ersned Planning <u>hhuds</u>	son@cmap.1111no1s.gov	
Questions? Ca	ll Holly at 312-38	66-8700				

Chicago Metropolitan Agency for Planning



Appendix G – Watershed-wide Urban Stormwater Retrofit BMP Scenarios and Associated Pollutant Load Reduction and Implementation Cost Estimates



Subwatershed # / Name	Sub'shed Treated (%)	BMP Type	Nitrogen Reduction (lb/yr)	Phosphorus Reduction (lb/yr)	BOD Reduction (lb/yr)	Sediment Reduction (t/yr)	Estimated Cost ¹ (\$)
	2%	Bioretention	298	92	1434	21	\$3,422,101
	2%	Bioswale	55	20	0	13	\$25,665,761
	3%	Permeable Pavers	0	57	0	27	\$16,041,101
1/	2%	Filterra	312	80	0	23	\$42,776,268
Salt Creek	3%	Bacterra	0	0	3513	0	\$64,164,403
North	4%	Detention Basin Retrofit	762	157	3011	46	\$1,368,841
	1%	Green Roof	87	14	0	10	\$5,133,152
	2%	Oil & Grit Separator	35	6	0	4	\$785,606
	2%	Infiltration Trench	381	68	0	20	\$10,266,304
Totals	21%		1929	494	7957	163	\$169,623,538
	4%	Bioretention	1071	347	5306	86	\$11,026,994
	4%	Bioswale	199	77	0	53	\$82,702,458
	5%	Permeable Pavers	0	214	0	110	\$51,689,037
2 /	3%	Filterra	841	225	0	70	\$103,378,073
Salt Creek	4%	Bacterra	0	0	8667	0	\$137,837,431
Central	6%	Detention Basin Retrofit	2055	443	8357	142	\$3,308,098
	3%	Green Roof	467	80	0	60	\$24,810,738
	2%	Oil & Grit Separator	62	11	0	8	\$1,265,725
	3%	Infiltration Trench	1028	193	0	62	\$24,810,738
Totals	34%		5723	1590	22331	593	\$440,829,291
	2%	Bioretention	285	82	1442	12	\$3,516,777
	2%	Bioswale	53	18	0	7	\$26,375,824
	3%	Permeable Pavers	0	50	0	15	\$16,484,890
3 /	2%	Filterra	298	70	0	13	\$43,959,707
Salt Creek	3%	Bacterra	0	0	3532	0	\$65,939,560
South	4%	Detention Basin Retrofit	729	139	3028	26	\$1,406,711
	1%	Green Roof	83	13	0	6	\$5,275,165
	1%	Oil & Grit Separator	17	3	0	1	\$403,670
	2%	Infiltration Trench	364	60	0	11	\$10,550,330
Totals	20%		1829	435	8001	92	\$173,912,632
	2%	Bioretention	534	166	2655	34	\$5,567,261
	2%	Bioswale	99	37	0	21	\$41,754,455
	3%	Permeable Pavers	0	103	0	43	\$26,096,535
4 /	2%	Filterra	559	144	0	37	\$69,590,759
Salt Creek	3%	Bacterra	0	0	6505	0	\$104,386,139
Southeast	4%	Detention Basin Retrofit	1367	283	5576	74	\$2,226,904
	1%	Green Roof	155	26	0	16	\$8,350,891
	1%	Oil & Grit Separator	31	5	0	3	\$639,034
	2%	Infiltration Trench	684	123	0	32	\$16,701,782
Totals	20%		3430	886	14736	260	\$275,313,760

Table G-1. Watershed-wide urban stormwater infrastructure retrofit BMPs with pollutant load reduction andimplementation cost estimates by subwatershed.



Subwatershed # / Name	Sub'shed Treated (%)	BMP Type	Nitrogen Reduction (lb/yr)	Phosphorus Reduction (lb/yr)	BOD Reduction (lb/yr)	Sediment Reduction (t/yr)	Estimated Cost ¹ (\$)
	4%	Bioretention	309	92	1529	13	\$2,816,360
	4%	Bioswale	57	21	0	8	\$21,122,697
	5%	Permeable Pavers	0	57	0	17	\$13,201,686
5 /	3%	Filterra	242	60	0	11	\$26,403,371
Devon Ave	4%	Bacterra	0	0	2497	0	\$35,204,495
Tributary	6%	Detention Basin Retrofit	592	118	2408	22	\$844,908
	3%	Green Roof	135	21	0	9	\$6,336,809
	2%	Oil & Grit Separator	18	3	0	1	\$323,274
	3%	Infiltration Trench	296	51	0	10	\$6,336,809
Totals	34%		1648	423	6435	91	\$112,590,408
	3%	Bioretention	847	257	4192	40	\$9,872,592
	3%	Bioswale	158	57	0	24	\$74,044,438
	4%	Permeable Pavers	0	169	0	54	\$49,362,959
6 /	2%	Filterra	591	148	0	29	\$82,271,598
Spring Brook	3%	Bacterra	0	0	6847	0	\$123,407,397
Creek	6%	Detention Basin Retrofit	2167	438	8804	87	\$3,949,037
	2%	Green Roof	328	53	0	24	\$19,745,183
	2%	Oil & Grit Separator	66	11	0	5	\$1,510,957
	3%	Infiltration Trench	1083	190	0	38	\$29,617,775
Totals	28%		5240	1323	19843	302	\$393,781,935
	4%	Bioretention	499	151	2483	23	\$5,294,708
	4%	Bioswale	93	34	0	14	\$39,710,307
	5%	Permeable Pavers	0	93	0	29	\$24,818,942
7/	3%	Filterra	392	98	0	19	\$49,637,883
Westwood	4%	Bacterra	0	0	4055	0	\$66,183,844
Creek	6%	Detention Basin Retrofit	958	193	3910	38	\$1,588,412
	3%	Green Roof	218	35	0	16	\$11,913,092
	2%	Oil & Grit Separator	29	5	0	2	\$607,749
	3%	Infiltration Trench	479	84	0	17	\$11,913,092
Totals	34%		2669	693	10448	158	\$211,668,028
	2%	Bioretention	149	46	792	6	\$1,817,734
	2%	Bioswale	28	10	0	4	\$13,633,008
	3%	Permeable Pavers	0	28	0	8	\$8,520,630
<u>, </u>	2%	Filterra	156	39	0	7	\$22,721,680
8/	3%	Bacterra	0	0	1940	0	\$34,082,520
Sugar Creek	4%	Detention Basin Retrofit	382	78	1663	14	\$727,094
	1%	Green Roof	43	7	0	3	\$2,726,602
	1%	Oil & Grit Separator	9	1	0	1	\$208,647
	2%	Infiltration Trench	191	34	0	6	\$5,453,203
Totals	20%		958	243	4394	48	\$89,891,118



Subwatershed # / Name	Sub'shed Treated (%)	BMP Type	Nitrogen Reduction (lb/yr)	Phosphorus Reduction (lb/yr)	BOD Reduction (lb/yr)	Sediment Reduction (t/yr)	Estimated Cost ¹ (\$)
	3%	Bioretention	73	19	400	3	\$796,960
	2%	Bioswale	9	3	0	1	\$3,984,799
	3%	Permeable Pavers	0	8	0	2	\$2,490,499
9 /	2%	Filterra	51	11	0	2	\$6,641,332
Oak Brook	4%	Bacterra	0	0	871	0	\$13,282,664
Tributary	4%	Detention Basin Retrofit	124	21	560	4	\$212 <i>,</i> 523
	1%	Green Roof	14	2	0	1	\$796 <i>,</i> 960
	1%	Oil & Grit Separator	3	0	0	0.2	\$60,986
	2%	Infiltration Trench	62	9	0	2	\$1,593,920
Totals	22%		336	73	1831	16	\$29,860,642
	3%	Bioretention	306	89	1623	13	\$3,589,780
	2%	Bioswale	38	13	0	5	\$17,948,898
	3%	Permeable Pavers	0	37	0	11	\$11,218,061
10.1	3%	Filterra	320	77	0	14	\$44,872,245
10/	3%	Bacterra	0	0	2651	0	\$44,872,245
Ginger Creek	6%	Detention Basin Retrofit	783	152	3409	28	\$1,435,912
	1%	Green Roof	59	9	0	4	\$3,589,780
	1%	Oil & Grit Separator	12	2	0	1	\$274,700
	2%	Infiltration Trench	261	44	0	8	\$7,179,559
Totals	24%		1780	423	7683	84	\$134,981,179
	2%	Bioretention	113	32	591	5	\$1,454,995
	2%	Bioswale	21	7	0	3	\$10,912,460
	3%	Permeable Pavers	0	20	0	6	\$6,820,287
11/	2%	Filterra	118	28	0	5	\$18,187,433
Bronswood	3%	Bacterra	0	0	1447	0	\$27,281,149
Tributary	4%	Detention Basin Retrofit	288	55	1241	10	\$581,998
-	1%	Green Roof	33	5	0	2	\$2,182,492
	1%	Oil & Grit Separator	7	1	0	0.5	\$167,010
	2%	Infiltration Trench	144	24	0	5	\$4,364,984
Totals	20%		724	173	3279	36	\$71,952,807
	3%	Bioretention	260	78	1273	11	\$3,168,060
	2%	Bioswale	32	12	0	5	\$15,840,298
	3%	Permeable Pavers	0	32	0	10	\$9,900,186
12 /	3%	Filterra	272	68	0	12	\$39,600,744
Addison	3%	Bacterra	0	0	2079	0	\$39,600,744
Creek North	5%	Detention Basin Retrofit	554	111	2228	21	\$1,056,020
	1%	Green Roof	50	8	0	3	\$3,168,060
	1%	Oil & Grit Separator	10	2	0	1	\$242,429
	2%	Infiltration Trench	221	39	0	7	\$6,336,119
Totals	23%		1399	350	5581	70	\$118,912,660



Subwatershed # / Name	Sub'shed Treated (%)	BMP Type	Nitrogen Reduction (lb/yr)	Phosphorus Reduction (lb/yr)	BOD Reduction (lb/yr)	Sediment Reduction (t/yr)	Estimated Cost ¹ (\$)
	4%	Bioretention	1305	403	6455	56	\$10,715,230
	4%	Bioswale	243	90	0	35	\$80,364,227
10 /	5%	Permeable Pavers	0	249	0	72	\$50,227,642
13 / Addison	4%	Filterra	1365	348	0	61	\$133,940,379
Addison Creek	5%	Bacterra	0	0	13178	0	\$167,425,474
Creek Central	6%	Detention Basin Retrofit	2503	515	10166	93	\$3,214,569
Central	3%	Green Roof	569	93	0	39	\$24,109,268
	2%	Oil & Grit Separator	76	12	0	5	\$1,229,939
	3%	Infiltration Trench	1252	224	0	41	\$24,109,268
Totals	36%		7312	1933	29799	403	\$495,335,997
	4%	Bioretention	580	179	2978	24	\$5,129,096
	4%	Bioswale	108	40	0	15	\$38,468,219
	5%	Permeable Pavers	0	110	0	31	\$24,042,637
14 /	4%	Filterra	607	155	0	27	\$64,113,699
Addison	5%	Bacterra	0	0	6079	0	\$80,142,124
Creek South	6%	Detention Basin Retrofit	1112	229	4690	40	\$1,538,729
	3%	Green Roof	253	41	0	17	\$11,540,466
	2%	Oil & Grit Separator	34	6	0	2	\$588,739
	3%	Infiltration Trench	556	99	0	18	\$11,540,466
Totals	36%		3249	859	13746	175	\$237,104,174
Grand Totals			38,225	9,897	156,064	2,490	\$2,955,758,170



Appendix H – Site-specific BMPs with Associated Landowners, Potential Partners and Timeframe, and Estimated Quantities and Planning Level Costs



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
1	3	Dam Modification	Hydrologic	1	FPDDC	DRSCW		w/in 5 yrs	41.82109	-87.92768
2	10	Detention Creation / Retrofit	Urban	0.45 ac	Vlg of Westmont		144000	w/in 5 yrs	41.82415	-87.96607
3	11	Detention Creation / Retrofit	Urban	2.1 ac	ROW	Vlg of Westmont	672000	w/in 5 yrs	41.80651	-87.97329
4	11	Detention Creation / Retrofit	Urban	1.95 ac	ROW	Vlg of Westmont	624000	w/in 10 yrs	41.81722	-87.97955
5	11	Detention Creation / Retrofit	Urban	0.35 ac	Vlg of Westmont		112000	w/in 10 yrs	41.81507	-87.97716
6	11	Shoreline Protection / Stabilization	Hydrologic	4370 ft	Private	Vlg of Westmont, Oakwood HOA, homeowners	943920	w/in 10 yrs	41.81517	-87.95719
7	11	Detention Creation / Retrofit	Urban	0.44 ac	Westmont Pk Dist	Vlg of Westmont	140800	w/in 5 yrs	41.81732	-87.96663
8	3	Dam Modification	Hydrologic	1	Private	DRSCW		w/in 10 yrs	41.83021	-87.94006
9	10	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	Oak Brook Pk Dist		43200	w/in 2 yrs	41.83877	-87.94964
10	13	Stream Channel Restoration (meanders)	Hydrologic	2421 ft	City of Northlake		2400000	w/in 5 yrs	41.92743	-87.90954
11	3	Wetland Creation / Restoration	Hydrologic	0.5 ac	FPD of Cook Co		7000	w/in 5 yrs	41.83193	-87.90347
12	3	Wetland Creation / Restoration	Hydrologic	0.4 ac	FPD of Cook Co		5600	w/in 5 yrs	41.83097	-87.90244
13	3	Wetland Creation / Restoration	Hydrologic	3 ac	FPD of Cook Co		42000	w/in 5 yrs	41.83138	-87.90077
14	3	Wetland Creation / Restoration	Hydrologic	0.7 ac	FPD of Cook Co		9800	w/in 5 yrs	41.83042	-87.90077
15	3	Wetland Creation / Restoration	Hydrologic	5 ac	FPD of Cook Co		70000	w/in 5 yrs	41.83164	-87.90011
16	4	Wetland Creation / Restoration	Hydrologic	2.6 ac	FPD of Cook Co		36400	w/in 5 yrs	41.83130	-87.89115
17	4	Wetland Creation / Restoration	Hydrologic	0.6 ac	FPD of Cook Co		8400	w/in 5 yrs	41.82883	-87.89078
18	8	Porous & Permeable Pavement	Urban	1 ac	Elmhurst Pk Dist	Vlg of Villa Park, Sugar Creek Golf Course	785000	w/in 5 yrs	41.87027	-87.96657
19	8	Bioretention / Bioinfiltration Facility	Urban	0.28 ac	Private	Vlg of Villa Park	420000	w/in 10 yrs	41.86968	-87.96627
20	8	Monitoring (Environmental)	Other	tbd	Vlg of Villa Park			w/in 10 yrs	41.87229	-87.96927
21	8	Grassed Waterway	Urban	0.23 ac	Private	Vlg of Villa Park	80150	w/in 10 yrs	41.86842	-87.97429



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
22	8	Grassed Waterway	Urban	0.1 ac	School Dist 88	Vlg of Villa Park	34848	w/in 10 yrs	41.86610	-87.97869
23	8	Bioretention / Bioinfiltration Facility	Urban	2.95 ac	School Dist 45	Vlg of Villa Park	7000000	w/in 2 yrs	41.86930	-87.98350
24	2	Porous & Permeable Pavement	Urban	0.24 ac	Vlg of Villa Park		188400	w/in 5 yrs	41.88837	-87.96288
25	8	Bioretention / Bioinfiltration Facility	Urban	2.94 ac	Vlg of Villa Park		2200000	w/in 5 yrs	41.87027	-87.97959
26	8	Dredging	Hydrologic	tbd	Vlg of Villa Park			w/in 5 yrs	41.87344	-87.96620
27	2	Dredging	Hydrologic	tbd	Vlg of Villa Park			w/in 10 yrs	41.90955	-87.97906
28	8	Stream Channel Stabilization (riffles)	Hydrologic	1000 ft	Private	Vlg of Villa Park	216000	w/in 10 yrs	41.86666	-87.97723
29	2	Dredging	Hydrologic	tbd	Vlg of Villa Park			w/in 10 yrs	41.89449	-87.99449
30	8	Dredging	Hydrologic	tbd	Vlg of Villa Park			w/in 5 yrs	41.86997	-87.97896
31	10	Dam Removal	Hydrologic	1	Oak Brook Pk Dist	Vlg of Oak Brook		w/in 2 yrs	41.83880	-87.94962
32	10	Dam Removal	Hydrologic	1	Private	Vlg of Oak Brook, Oak Brook Pk Dist		w/in 5 yrs	41.83938	-87.95322
33	10	Streambank Protection / Stabilization	Hydrologic	4200 ft	Oak Brook Pk Dist	Vlg of Oak Brook	907200	w/in 2 yrs	41.83914	-87.95093
34	10	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	Oak Brook Pk Dist	Vlg of Oak Brook	43200	w/in 2 yrs	41.83879	-87.94966
35	6	Stream Channel Stabilization (riffles)	Hydrologic	700 ft	Private	Vlg of Itasca	219000	w/in 5 yrs	41.97288	-88.01056
36	6	Wetland Creation / Restoration	Hydrologic	1 ac	Vlg of Itasca		14000	w/in 5 yrs	41.96979	-88.02322
37	6	Education & Outreach / Planning	Other	tbd	Vlg of Itasca	Springbrook Nature Center		w/in 5 yrs	41.96963	-88.02206
38	5	Urban Filter Strip	Urban	18.5 ac	Private	Vlg of Itasca	1051448	w/in 10 yrs	41.98895	-88.01970
39	6	Wetland Creation / Restoration	Hydrologic	2.8 ac	Vlg of Itasca		39200	w/in 10 yrs	41.97831	-88.02495
40	6	Streambank Protection / Stabilization	Hydrologic	350 ft	Private	Vlg of Itasca	75600	w/in 10 yrs	41.97100	-88.01633
41	3	Streambank Protection / Stabilization	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.82665	-87.90974
42	4	Streambank Protection / Stabilization	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.82736	-87.88618



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
43	4	Streambank Protection / Stabilization	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.84078	-87.88309
44	4	Streambank Protection / Stabilization	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.84646	-87.87242
45	4	Streambank Protection / Stabilization	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.84395	-87.85682
46	4	Streambank Protection / Stabilization	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.84107	-87.84116
47	4	Streambank Protection / Stabilization	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.83084	-87.84236
48	4	Streambank Protection / Stabilization	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.81939	-87.83519
49	3	Wetland Creation / Restoration	Hydrologic	0.5 ac	FPD of Cook Co		7000	w/in 10 yrs	41.82652	-87.90585
50	4	Wetland Creation / Restoration	Hydrologic	1 ac	FPD of Cook Co		14000	w/in 10 yrs	41.82729	-87.89075
51	4	Wetland Creation / Restoration	Hydrologic	0.4 ac	FPD of Cook Co		5600	w/in 10 yrs	41.83824	-87.88383
52	4	Wetland Creation / Restoration	Hydrologic	2.4 ac	FPD of Cook Co		33600	w/in 10 yrs	41.84552	-87.87418
53	4	Wetland Creation / Restoration	Hydrologic	0.5 ac	FPD of Cook Co		7000	w/in 10 yrs	41.84392	-87.85968
54	4	Wetland Creation / Restoration	Hydrologic	0.5 ac	FPD of Cook Co		7000	w/in 10 yrs	41.84174	-87.84483
55	4	Wetland Creation / Restoration	Hydrologic	0.5 ac	FPD of Cook Co		7000	w/in 10 yrs	41.82799	-87.84285
56	4	Wetland Creation / Restoration	Hydrologic	0.5 ac	FPD of Cook Co		7000	w/in 10 yrs	41.81949	-87.83796
57	4	Monitoring (Environmental)	Other	tbd	FPD of Cook Co			w/in 10 yrs	41.83895	-87.90342
58	4	Wetland Creation / Restoration	Hydrologic	19 ac	FPD of Cook Co		7410000	w/in 10 yrs	41.83895	-87.90256
59	4	Monitoring (Environmental)	Other	tbd	FPD of Cook Co				41.83637	-87.90368
60	4	Wetland Creation / Restoration	Hydrologic	3.8 ac	FPD of Cook Co		1482000	w/in 10 yrs	41.83642	-87.90282
61	3	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.82876	-87.90891
62	3	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.82995	-87.90323



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
63	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.82445	-87.89150
64	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.82583	-87.89036
65	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.82855	-87.88187
66	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.83174	-87.88215
67	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.83233	-87.88331
68	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.83154	-87.88407
69	4	Wetland Creation / Restoration	Hydrologic	3.3 ac	FPD of Cook Co		46200	w/in 10 yrs	41.83110	-87.88810
70	4	Dam Removal	Hydrologic	1	FPD of Cook Co			w/in 10 yrs	41.83770	-87.88388
71	4	Dam Removal	Hydrologic	1	FPD of Cook Co			w/in 10 yrs	41.84528	-87.88043
72	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.83600	-87.88265
73	4	Stream Channel Stabilization (riffles)	Hydrologic	300 ft	FPD of Cook Co		64800	w/in 10 yrs	41.84287	-87.87931
74	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.84496	-87.86722
75	4	Bioswale	Urban	0.75 ac	FPD of Cook Co		412500	w/in 10 yrs	41.84257	-87.85485
76	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.84277	-87.85007
77	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.84141	-87.84606
78	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.84262	-87.84509
79	4	Wetland Creation / Restoration	Hydrologic	13 ac	FPD of Cook Co		182000	w/in 10 yrs	41.84099	-87.83797
80	4	Dam Removal	Hydrologic	1	FPD of Cook Co			w/in 10 yrs	41.82955	-87.84319
81	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.82754	-87.84252
82	4	Stream Channel Stabilization (riffles)	Hydrologic	200 ft	FPD of Cook Co		43200	w/in 10 yrs	41.81986	-87.83582



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
83	4	Porous & Permeable Pavement	Urban	1.4 ac	FPD of Cook Co		1099000	w/in 10 yrs	41.82349	-87.90748
84	3	Porous & Permeable Pavement	Urban	1.8 ac	FPD of Cook Co		1413000	w/in 10 yrs	41.82822	-87.90430
85	4	Porous & Permeable Pavement	Urban	1.2 ac	FPD of Cook Co		942000	w/in 10 yrs	41.83292	-87.91119
86	4	Porous & Permeable Pavement	Urban	1 ac	FPD of Cook Co		785000	w/in 10 yrs	41.83605	-87.87986
87	4	Porous & Permeable Pavement	Urban	2.2 ac	FPD of Cook Co		1727000	w/in 10 yrs	41.84422	-87.87449
88	4	Porous & Permeable Pavement	Urban	1.75 ac	FPD of Cook Co		1373750	w/in 10 yrs	41.84777	-87.87310
89	4	Porous & Permeable Pavement	Urban	0.3 ac	FPD of Cook Co		235500	w/in 10 yrs	41.84222	-87.85760
90	4	Porous & Permeable Pavement	Urban	0.3 ac	FPD of Cook Co		235500	w/in 10 yrs	41.84231	-87.85394
91	4	Porous & Permeable Pavement	Urban	1 ac	FPD of Cook Co		785000	w/in 10 yrs	41.82451	-87.89477
92	4	Porous & Permeable Pavement	Urban	0.8 ac	FPD of Cook Co		628000	w/in 10 yrs	41.84525	-87.85070
93	4	Porous & Permeable Pavement	Urban	0.5 ac	FPD of Cook Co		392500	w/in 10 yrs	41.83596	-87.83963
94	7	Streambank Protection / Stabilization	Hydrologic	3500 ft	Private	Vlg of Addison	756000	w/in 10-20 yrs	41.93870	-87.99479
95	2	Shoreline Protection / Stabilization	Hydrologic	3500 ft	Vlg of Addison		756000	w/in 10-20 yrs	41.92860	-87.98064
96	7	Porous & Permeable Pavement	Urban	0.62 ac	Vlg of Addison		486700	w/in 10-20 yrs	41.93962	-88.02542
97	7	Porous & Permeable Pavement	Urban	0.62 ac	Vlg of Addison		486700	w/in 10-20 yrs	41.93866	-88.02546
98	7	Porous & Permeable Pavement	Urban	0.64 ac	Vlg of Addison		502400	w/in 10-20 yrs	41.93771	-88.02517
99	7	Streambank Protection / Stabilization	Hydrologic	4800 ft	Private	Vlg of Addison	1036800	w/in 15-25 yrs	41.93542	-88.01242
100	7	Porous & Permeable Pavement	Urban	0.46 ac	Vlg of Addison		361100	w/in 15-25 yrs	41.93556	-88.00335
101	7	Bioretention / Bioinfiltration Facility	Urban	0.08 ac	Vlg of Addison		120000	w/in 5 yrs	41.92961	-88.02437



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
102	3	Education & Outreach / Planning	Other	tbd	Private				41.85933	-87.94349
103	2	Education & Outreach / Planning	Other	tbd	DuPage Co FPD				41.91106	-87.96490
104	4	Critical Area Planting	Urban	tbd	FPD of Cook Co			w/in 5 yrs	41.83375	-87.88289
105	10	Porous & Permeable Pavement	Urban	2	Oak Brook Pk Dist		1570000	w/in 5 yrs	41.83728	-87.95058
106	10	Bioswale	Urban	0.5	Oak Brook Pk Dist		275000	w/in 5 yrs	41.83768	-87.95016
107	6	Education & Outreach / Planning	Other	tbd	Itasca Pk Dist	Vlg of Itasca		w/in 10 yrs	41.96969	-88.02087
108	5	Shoreline Protection / Stabilization	Hydrologic	4500 ft	Private	Vlg of Itasca	972000	w/in 10 yrs	41.98864	-88.01823
109	1	Porous & Permeable Pavement	Urban	3.7 ac	FPD of Cook Co		2904500	w/in 5 yrs	41.94552	-87.97893
110	13	Porous & Permeable Pavement	Urban	0.75 ac	City of Northlake		577680		41.91476	-87.90656
111	14	Detention Creation / Retrofit	Urban	2 ac	Vlg of Hillside		1190224		41.88106	-87.90469
112	14	Detention Creation / Retrofit	Urban	1.5 ac	Vlg of Hillside		1197830		41.87039	-87.90112
113	14	Detention Creation / Retrofit	Urban	1.87 ac	Vlg of Hillside		1392418		41.86751	-87.89698
114	14	Detention Creation / Retrofit	Urban	4.7 ac	Vlg of Hillside		1813262		41.86414	-87.89979
115	4	Detention Creation / Retrofit	Urban	1.25 ac	Vlg of Hillside		930754		41.84492	-87.89934
116	8	Sediment Basin	Urban	0.3 ac	Vlg of Villa Pk	Sugar Creek Golf Course	250000	w/in 2 yrs	41.87279	-87.96575
117	8	Stream Channel Restoration (meanders)	Hydrologic	700 ft	Vlg of Villa Pk	Sugar Creek Golf Course	1500000	w/in 2 yrs	41.87308	-87.96768
118	8	Shoreline Protection / Stabilization	Hydrologic	2700 ft	Vlg of Villa Pk	Sugar Creek Golf Course	700000	w/in 2 yrs	41.87308	-87.96390
119	8	Wetland Creation / Restoration	Hydrologic	1.8 ac	Elmhurst Pk Dist	Vlg of Villa Park, Sugar Creek Golf Course	300000	w/in 2 yrs	41.87145	-87.96648
120	8	Education & Outreach / Planning	Other	tbd	Vlg of Villa Pk	Villa Pk Parks & Rec, Elmhurst Pk Dist, other agencies		w/in 2 yrs	41.87177	-87.96468
121	8	Monitoring (Environmental)	Other	tbd	Private	Vlg of Villa Park, Sugar Creek Golf Course		w/in 2 yrs	41.87173	-87.96781
122	13	Porous & Permeable Pavement	Urban	0.12 ac	City of Northlake		94200	w/in 2 yrs	41.91417	-87.90676



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
123	13	Porous & Permeable Pavement	Urban	1.8 ac	City of Northlake		1413000	w/in 2 yrs	41.91306	-87.90685
124	6	Dam Removal	Hydrologic	1	Private	DRSCW		w/in 15 yrs	41.97191	-87.99837
125	1	Streambank Protection / Stabilization	Hydrologic	5100 ft	Private	City of Wood Dale, FPDDC	2000000	w/in 5 yrs	41.96188	-87.98407
126	1	Wetland Creation / Restoration	Hydrologic	9 ac	City of Wood Dale		3510000	w/in 10 yrs	41.95863	-87.98442
127	6	Streambank Protection / Stabilization	Hydrologic	3100 ft	Private	Vlg of Roselle	280800	w/in 10 yrs	41.98677	-88.06806
128	6	Streambank Protection / Stabilization	Hydrologic	1100 ft	Private	Vlg of Roselle	237600	w/in 5 yrs	41.97790	-88.08102
129	6	Streambank Protection / Stabilization	Hydrologic	2200 ft	Private	Vlg of Roselle	475200	w/in 10 yrs	41.98212	-88.08795
130	6	Streambank Protection / Stabilization	Hydrologic	1500 ft	Private	Vlg of Roselle	324000	w/in 10 yrs	41.97254	-88.07990
131	6	Wetland Creation / Restoration	Hydrologic	2.75 ac	Private	Vlg of Roselle	1072500	w/in 5 yrs	41.99315	-88.08256
132	6	Urban Filter Strip	Urban	0.75 ac	Private	Vlg of Roselle	42626	w/in 5 yrs	41.98677	-88.06239
133	14	Bioretention / Bioinfiltration Facility	Urban	0.4 ac	Private	Vlg of Hillside	600000		41.86427	-87.88849
134	14	Bioswale	Urban	tbd	Private	Vlg of Hillside			41.86466	-87.88656
135	14	Bioswale	Urban	tbd	Private	Vlg of Hillside			41.86400	-87.88510
136	14	Education & Outreach / Planning	Other	tbd	Private	SCWN, DRSCW, CMAP		w/in 5 yrs	41.85016	-87.85644
137	14	Education & Outreach / Planning	Other	tbd	Private	SCWN, DRSCW, CMAP		w/in 5 yrs	41.85278	-87.85665
138	8	Streambank Protection / Stabilization	Hydrologic	750 ft	Vlg of Lombard	DCSM	1100000	w/in 10 yrs	41.86491	-87.99296
139	8	Streambank Protection / Stabilization	Hydrologic	370 ft	FPD of DuPage Co	DCSM	2000000	w/in 10 yrs	41.86442	-87.98765
140	8	Bioretention / Bioinfiltration Facility	Urban	5.8 ac	Vlg of Villa Pk	Sugar Creek Golf Course, DCSM	1856000	w/in 10 yrs	41.87380	-87.96570
141	12	Streambank Protection / Stabilization	Hydrologic	1600 ft	Private	Vlg of Bensenville	345600	w/in 5 yrs	41.94127	-87.92832



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
142	12	Stream Channel Restoration (meanders)	Hydrologic	1600 ft	Private	Vlg of Bensenville	345600	w/in 5 yrs	41.93930	-87.92735
143	12	Stream Channel Stabilization (riffles)	Hydrologic	1300 ft	Private	Vlg of Bensenville	280800	w/in 5 yrs	41.94438	-87.93873
144	12	Streambank Protection / Stabilization	Hydrologic	600 ft	Private	Vlg of Bensenville	129600	w/in 10 yrs	41.93633	-87.94080
145	12	Streambank Protection / Stabilization	Hydrologic	1400 ft	Private	Vlg of Bensenville	302400	w/in 5 yrs	41.94706	-87.92637
146	12	Stream Channel Restoration (meanders)	Hydrologic	500 ft	Bensenville Pk Dist	Vlg of Bensenville	108000	w/in 5 yrs	41.94045	-87.92799
147	2	Porous & Permeable Pavement	Urban	0.2 ac	City of Elmhurst		157000	w/in 10 yrs	41.90494	-87.94514
148	2	Bioretention / Bioinfiltration Facility	Urban	0.5 ac	City of Elmhurst		750000	w/in 10 yrs	41.89359	-87.96218
149	13	Bioretention / Bioinfiltration Facility	Urban	0.16 ac	Private	City of Elmhurst	240000	w/in 10 yrs	41.89728	-87.92138
150	13	Rain Garden	Urban	tbd	City of Elmhurst			w/in 10 yrs	41.90284	-87.93785
151	13	Infiltration Trench	Urban	tbd	City of Elmhurst			w/in 10 yrs	41.90041	-87.93999
152	13	Porous & Permeable Pavement	Urban	tbd	City of Elmhurst			w/in 10 yrs	41.90123	-87.93360
153	13	Streambank Protection / Stabilization	Hydrologic	1450 ft	Private	City of Elmhurst	720000	w/in 20 yrs	41.92553	-87.94846
154	13	Streambank Protection / Stabilization	Hydrologic	600 ft	Private	City of Elmhurst	600000	w/in 20 yrs	41.92690	-87.94490
155	13	Streambank Protection / Stabilization	Hydrologic	600 ft	Private	City of Elmhurst	650000	w/in 20 yrs	41.92688	-87.94269
156	13	Streambank Protection / Stabilization	Hydrologic	1500 ft	Private	City of Elmhurst	2000000	w/in 20 yrs	41.92456	-87.93903
157	13	Streambank Protection / Stabilization	Hydrologic	1900 ft	Private	City of Elmhurst	1600000	w/in 20 yrs	41.92466	-87.93141
158	13	Streambank Protection / Stabilization	Hydrologic	1500 ft	Private	City of Elmhurst	2000000	w/in 20 yrs	41.92547	-87.92394
159	13	Stream Channel Restoration (meanders)	Hydrologic	4000 ft	Private	City of Elmhurst	1300000	w/in 20 yrs	41.92465	-87.93039
160	13	Stream Channel Restoration (meanders)	Hydrologic	2080 ft	Private	City of Elmhurst	1700000	w/in 20 yrs	41.92458	-87.93697
161	13	Subsurface Drain	Urban	100 ft	City of Elmhurst		15000	w/in 10 yrs	41.92466	-87.93368



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
162	13	Subsurface Drain	Urban	90 ft	Private	City of Elmhurst	150000	w/in 10 yrs	41.92490	-87.92533
163	6	Porous & Permeable Pavement	Urban	0.62 ac	County of DuPage	DuPage Co Public Works, DCSM	486700		41.96319	-88.02846
164	6	Streambank Protection / Stabilization	Hydrologic	1600 ft	Private	DuPage Co Public Works, DCSM	345600		41.96335	-88.02806
165	6	Wetland Creation / Restoration	Hydrologic	0.43 ac	County of DuPage	DuPage Co Public Works, DCSM	6020		41.96282	-88.02807
166	6	Urban Filter Strip	Urban	0.15 ac	County of DuPage	DuPage Co Public Works, DCSM	8525		41.96295	-88.02819
167	6	Rain Garden	Urban	0.03 ac	County of DuPage	DuPage Co Public Works, DCSM	31363		41.96299	-88.02833
168	6	Critical Area Planting	Urban	24 ac	FPD of DuPage Co	DCSM	48000		41.95796	-88.05740
169	1	Bioswale	Urban	20 ac	DuPage Co	FPDDC, DCSM	75000		41.97323	-87.98788
170	13	Wetland Creation / Restoration	Hydrologic	2.6 ac	Private	City of Elmhurst	530000	w/in 10 yrs	41.92446	-87.92619
171	13	Wetland Creation / Restoration	Hydrologic	2 ac	Private	City of Elmhurst	400000	w/in 10 yrs	41.92429	-87.93791
172	13	Wetland Creation / Restoration	Hydrologic	2 ac	Private	City of Elmhurst	400000	w/in 10 yrs	41.92442	-87.93422
173	12	Stream Channel Restoration (meanders)	Hydrologic	1700 ft	City of Northlake, Private		1700000	w/in 5 yrs	41.92702	-87.91635
174	13	Stream Channel Restoration (meanders)	Hydrologic	2.5 ac / 1648 ft	City of Northlake, Private		1600000	w/in 5 yrs	41.92361	-87.91059
175	3	Porous & Permeable Pavement	Urban	1 ac	FPD of Cook Co		785000	w/in 10 yrs	41.82168	-87.90307
176	8	Dam Modification	Hydrologic	1	Vlg of Villa Pk	Sugar Creek Golf Course		w/in 2 yrs	41.87308	-87.96768
177	1	Wetland Creation / Restoration	Hydrologic	2.3 ac	Private	City of Wood Dale	32200	w/in 5 yrs	41.96144	-87.98369
178	6	Subsurface Drain	Urban	tbd	Private	City of Roselle			41.98197	-88.08868
179	8	Detention Creation / Retrofit	Urban	6.8 ac	Vlg of Lombard	DCSM	2176000		41.86121	-87.99756
180	4	Education & Outreach / Planning	Other	tbd	FPD of Cook Co				41.84447	-87.87930
181	12	Critical Area Planting	Urban	31 ac	Vlg of Bensenville	DCSM	62000		41.94315	-87.92744

Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
182	6	Stream Channel Stabilization (riffles)	Hydrologic	1600 ft	FPD of DuPage Co	DRSCW	750000		41.97197	-87.99616
183	6	Stream Channel Stabilization (riffles)	Hydrologic	2640 ft	Private	Itasca Pk Dist, DRSCW, FPDDC	750000		41.96350	-88.02910
184	7	Stream Channel Stabilization (riffles)	Hydrologic	2640 ft	Addison Pk Dist	DRSCW	550000		41.93999	-87.99105
185	12	Streambank Protection / Stabilization	Hydrologic	2640 ft	Vlg of Bensenville	DRSCW	550000		41.94640	-87.92630
186	10	Stream Channel Stabilization (riffles)	Hydrologic	2640 ft	Private	Vlg of Oak Brook, DRSCW	750000		41.83805	-87.97001
187	9	Streambank Protection / Stabilization	Hydrologic	2640 ft	Private	Vlg of Oak Brook, DRSCW	450000		41.85368	-87.94909
188	8	Streambank Protection / Stabilization	Hydrologic	2640 ft	City of Elmhurst	FPDDC, DRSCW	750000		41.87316	-87.95687
189	1	Streambank Protection / Stabilization	Hydrologic	2640 ft	Private	Vlg of Itasca, Vlg of Wood Dale, FPDDC, DRSCW	550000		41.97057	-87.98853
190	3	Streambank Protection / Stabilization	Hydrologic	2640 ft	Multiple	FPDDC, DRSCW, Vlg of Oak Brook, DCSM	750000		41.84885	-87.93548
191	2	Stream Channel Stabilization (riffles)	Hydrologic	2640 ft	Vlg of Oak Brook	DRSCW	750000		41.83560	-87.94220
192	2	Streambank Protection / Stabilization	Hydrologic	2640 ft	City of Elmhurst	FPDDC, DRSCW	750000		41.87403	-87.95562
193	6	Stream Channel Stabilization (riffles)	Hydrologic	2640 ft	Private	DRSCW	550000		41.96710	-88.04670
194	12	Streambank Protection / Stabilization	Hydrologic	2640 ft	Private	Vlg of Bensenville, DRSCW	500000		41.93658	-87.94019
195	12	Streambank Protection / Stabilization	Hydrologic	2640 ft	Private	City of Northlake, DRSCW	750000		41.92865	-87.91165
196	14	Streambank Protection / Stabilization	Hydrologic	2640 ft	Private	DRSCW	750000		41.86146	-87.86836
197	3	Stream Channel Stabilization (riffles)	Hydrologic	2640 ft	Private	FPDDC, DRSCW	3000000		41.82491	-87.93145
198	3	Dam Modification	Hydrologic	1	Private	FPDDC, DRSCW			41.82561	-87.93136



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
199	3	Urban Filter Strip	Urban	6 ac	Private	FPDDC, DRSCW			41.82624	-87.93132
200	6	Dam Modification	Hydrologic	1	FPD of DuPage Co	DRSCW			41.97205	-87.99539
201	6	Urban Filter Strip	Urban	3 ac	FPD of DuPage Co	DRSCW			41.97204	-87.99687
202	6	Dam Modification	Hydrologic	1	Private	Vlg of Bloomingdale, DRSCW	550000		41.95815	-88.06547
203	6	Stream Channel Restoration (meanders)	Hydrologic	tbd	Private	Vlg of Bloomingdale, DRSCW			41.95810	-88.06618
204	6	Dam Removal	Hydrologic	1	FPD of DuPage Co	DRSCW	100000		41.96670	-88.07740
205	3	Stream Channel Stabilization (riffles)	Hydrologic	tbd	Addison Pk Dist	FPDDC, DRSCW	300000		41.93840	-87.98550
206	2	Stream Channel Stabilization (riffles)	Hydrologic	tbd	Vlg of Addison, FPD of DuPage Co	DRSCW	300000		41.92010	-87.97280
207	2	Stream Channel Stabilization (riffles)	Hydrologic	tbd	Elmhurst Pk Dist, City of Elmhurst	DRSCW	300000		41.87970	-87.95820
208	2	Urban Filter Strip	Urban	3 ac	Elmhurst Pk Dist	DRSCW, DuPage Co, Salt Crk Sanitary Dist, City of Elmhurst, Vlg of Villa Pk	200000		41.88520	-87.95980
209	7	Urban Filter Strip	Urban	6 ac	Addison Pk Dist	DRSCW			41.94000	-87.99050
210	12	Urban Filter Strip	Urban	6 ac	Private	Vlg of Bensenville, DRSCW			41.93714	-87.93979
211	12	Urban Filter Strip	Urban	6 ac	Private	City of Northlake, DRSCW			41.92859	-87.91074
212	13	Urban Filter Strip	Urban	1 ac	Multiple	DRSCW, Vlg of Stone Pk, MWRD	500000		41.89891	-87.88398
213	13	Stream Channel Stabilization (riffles)	Hydrologic	tbd	Multiple	DRSCW, Vlg of Stone Pk, MWRD			41.89874	-87.88447
214	14	Urban Filter Strip	Urban	3 ac	Multiple	DRSCW, Vlg of Westchester, Vlg of Broadview, MWRD			41.86139	-87.86787
215	10	Urban Filter Strip	Urban	6 ac	Private	Vlg of Oak Brook, DRSCW			41.83811	-87.96934
216	9	Urban Filter Strip	Urban	3 ac	Private	Vlg of Oak Brook, DRSCW			41.85357	-87.94976
217	8	Urban Filter Strip	Urban	3 ac	City of Elmhurst	FPDDC, DRSCW			41.87319	-87.95573
218	1	Urban Filter Strip	Urban	6 ac	Private	Vlg of Itasca, FPDDC, DRSCW, DCSM			41.97020	-87.98742



Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
219	14	Urban Filter Strip	Urban	2 ac	Private	DRSCW, Vlg of Bellwood, MWRD			41.87230	-87.86890
220	14	Stream Channel Stabilization (riffles)	Hydrologic	tbd	Private	DRSCW, Vlg of Bellwood, MWRD			41.87173	-87.86874
221	3	Urban Filter Strip	Urban	6 ac	FPD of DuPage Co	DRSCW, Vlg of Oak Brook			41.84821	-87.93612
222	2	Urban Filter Strip	Urban	6 ac	City of Elmhurst, Elmhurst Pk Dist	FPDDC, DRSCW			41.87456	-87.95632
223	4	Urban Filter Strip	Urban	3 ac	Private	DRSCW, Vlg of Lyons, home-owners, MWRD	200000		41.81990	-87.83900
224	6	Urban Filter Strip	Urban	3 ac	Private	DRSCW, Vlg of Roselle, homeowners	200000		41.97200	-88.07990
225	1	Stream Channel Stabilization (riffles)	Hydrologic	tbd	FPD of DuPage Co	DRSCW, Wood Dale Pk Dist	300000		41.99250	-87.99500
226	1	Stream Channel Stabilization (riffles)	Hydrologic	tbd	Wood Dale Pk Dist	DRSCW	300000		41.96300	-87.98410
227	1	Stream Channel Stabilization (riffles)	Hydrologic	tbd	FPD of Cook Co, Elk Grove Vlg	DRSCW	300000		42.01200	-88.00110
228	13	Detention Creation / Retrofit	Urban	tbd	MWRD	Bellwood	109542000		41.88192	-87.86695
229	14	Stream Channel Stabilization (riffles)	Hydrologic	tbd	Multiple	MWRD, Northlake, Melrose Pk, Stone Pk, Bellwood, Westchester, Broadview	48133000		41.87549	-87.86825
230	14	Streambank Protection / Stabilization	Hydrologic	tbd	Multiple	MWRD, North Riverside			41.84753	-87.85508
231	13	Streambank Protection / Stabilization	Hydrologic	tbd	Multiple	City of Northlake, MWRD			41.91791	-87.90632
232	13	Detention Creation / Retrofit	Urban	tbd	MWRD	Berkeley	5065674		41.89266	-87.90327
233	13	Flood-Prone Property Acquisition	Hydrologic	tbd	Multiple	MWRD, Northlake, private landowners	1329471		41.90196	-87.88743
234	14	Education & Outreach / Planning	Other	tbd	Vlg of Hillside	MWRD			41.86419	-87.88991
235	13	Stream Channel Restoration (meanders)	Hydrologic	1421 ft	City of Northlake		1400000	w/in 5 yrs	41.91955	-87.90779

Map #	Sub'shd #	ВМР Туре	Category	Est. Qty	Landowner or Lead	Potential Partners	Estimated Cost (\$)	Timeframe	Latitude	Longitude
236	4	Wetland Creation / Restoration	Hydrologic	7 ac	Vlg of Brookfield				41.82624	-87.84141
237	4	Streambank Protection / Stabilization	Hydrologic	7920 ft	Vlg of Brookfield				41.82502	-87.84132
238	4	Monitoring (Environmental)	Other	tbd	Vlg of Brookfield	SCWN, Sierra Club, DRSCW			41.82559	-87.84125
239	4	Education & Outreach / Planning	Other	tbd	Vlg of Brookfield	SCWN, Sierra Club, DRSCW			41.82324	-87.84175
240	4	Wetland Creation / Restoration	Hydrologic	9 ac	Vlg of Brookfield				41.82178	-87.84051
241	1	Shoreline Protection / Stabilization	Hydrologic	1500 ft	FPD of DuPage Co				41.95972	-88.01440
242	1	Urban Filter Strip	Urban	tbd	FPD of DuPage Co				41.95992	-88.01562
243	11	Urban Filter Strip	Urban	tbd	Multiple	Vlg of Westmont, Oakwood HOA, homeowners		w/in 10 yrs	41.81509	-87.96065
244	4	Shoreline Protection / Stabilization	Hydrologic	tbd	FPD of Cook Co	CZS - Brookfield Zoo			41.83309	-87.84105
245	4	Urban Filter Strip	Urban	tbd	FPD of Cook Co	CZS - Brookfield Zoo			41.83322	-87.84040
246	4	Dredging	Hydrologic	tbd	FPD of Cook Co	CZS - Brookfield Zoo			41.83290	-87.84054
247	4	Nutrient Inactivation	Other	tbd	FPD of Cook Co	CZS - Brookfield Zoo		w/in 2 yrs	41.83269	-87.83989
248	4	Education & Outreach / Planning	Other	tbd	Vlg of Brookfield	Ehlert Park stewards, SCWN, DRSCW		w/in 5 yrs	41.81211	-87.84567
249	12	Aquatic Plant Establishment	Other	tbd	Vlg of Bensenville	DCSM			41.94446	-87.92974
250	4	Aquatic Plant Establishment	Other	tbd	FPD of Cook Co	CZS - Brookfield Zoo			41.83283	-87.83956
251	11	Aquatic Plant Establishment	Other	tbd	Oakwood HOA	Oakwood HOA, homeowners			41.81439	-87.95579







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