

Lake Decatur Watershed Management Plan & Initiative

Long-Term Strategy

April 30, 2021

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Cover page: Lake Decatur watershed boundary (source: ISWS)

Executive Summary

This Long-Term Strategy (LTS) guides planning and management for the Lake Decatur watershed with the objective to reduce sediment and nutrients entering the lake. On an annual basis, approximately \$1M of sediment (based on dredging costs) enters the lake. According to the Illinois State Water Survey (ISWS), 15% of the watershed area nearest the lake contributes approximately 50% of the sediment. The ISWS estimates that over 13M lbs/year of nitrate loading occurs in the watershed, causing a periodic exceedance in drinking water standards, requiring approximately \$200,000 in annual treatment cost. Figure 1 illustrates the estimated proportion of sediment and nitrate sources to Lake Decatur.

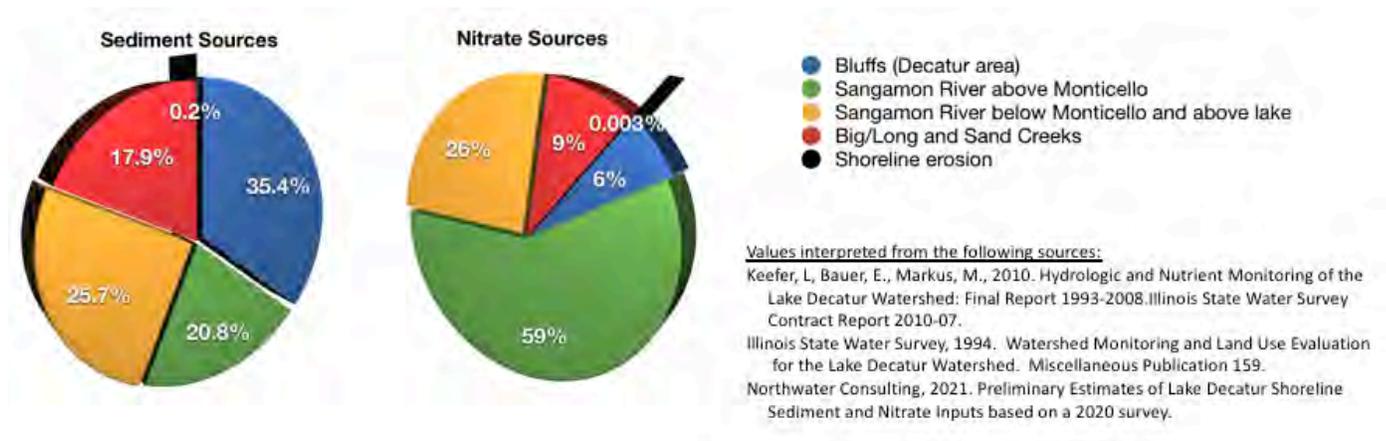


Figure 1 – Sources of Sediment and Nitrate in the Lake Decatur Watershed

This LTS details an approach to: (i) establish a consistent structure and messaging, (ii) build strong partnerships, and (iii) enable a constant flow of financial resources to achieve water quality objectives. The strategy is based upon four foundations of watershed planning:

1. Leadership and coordination.
2. Leveraging of opportunities.
3. Subwatershed plan sequencing.
4. Impactful launch and continuity.

Successful execution of this LTS will lead to reductions in sediment and nutrient loading to the lake; perhaps increasing the life of the existing dredging investment by 25 to 50 years and reducing or eliminating nitrate treatment costs.

A minimum investment of **\$20M** will achieve significant results over the next six years, a majority of this funding can be secured from grant programs. Assuming grant awards, a minimum City investment of **\$4M** will be required over the six years, most of which is already committed. Without grant subsidies, a minimum City investment of **\$20M** would be necessary, along with extended timelines and increased staffing commitments. City-led commitment and investment to secure grants is important.

This LTS assumes that consultants will continue to perform key tasks. Nonetheless, the City must assume two primary responsibilities for successful execution of the LTS. The two key responsibilities are:

1. Serve as the executive and strategic watershed program leader in a figurehead and directional-level role for the watershed program.
2. Existing City staff positions may need to be reprioritized to align with the LTS and watershed program as it evolves.
 - a. This is particularly relevant to management of the City's lake assets and adjoining properties. Several initiatives and projects are proposed to leverage City properties will require involvement of City management, even if the projects are led by consultants. Filling these roles is possible with reprioritization of existing staff, however, the City may need to eventually consider strategic hire(s).

1 Introduction

This Long-Term Strategy (LTS) guides planning and management for the Lake Decatur with the objective to reduce sediment and nutrients entering the lake.

The recent dredging program removed approximately 10,700,000 cubic-yards of sediment at a cost of \$92M. On an annual basis, over \$1M of sediment (based on dredging costs) enters the lake. According to the Illinois State Water Survey (ISWS), 15% of the watershed area nearest the lake contributes approximately 50% of the sediment. The ISWS estimates over 13M lbs/year of nitrate loading to the watershed, approximately 60% from upstream of Monticello. Nitrate loading to the lake per unit area is higher in proximity to the lake and decreases as drainage area increases. Nitrate loading causes the lake to periodically exceed drinking water standards, requiring approximately \$200,000 in annual treatment costs.

This LTS represents a guiding vision for the lake and watershed and is focused on two goals:

1. Achieve measurable reductions in sediment loading from a baseline to maximize the life of dredging investments.
2. Achieve measurable reductions in nitrate loading and reduce exceedances of the 10 mg/L drinking water standard.

Based on results from watershed surveys, stakeholder outreach, and capacity evaluations performed from April through October 2020, the LTS details an approach to: (i) establish a consistent structure and messaging, (ii) build strong partnerships, and (iii) enable a constant flow of financial resources to achieve water quality objectives.

The strategy is based upon four foundations of watershed planning:

1. Leadership and coordination.
2. Leveraging of opportunities.
3. Subwatershed plan sequencing.
4. Impactful launch and continuity.

Section 2 summarizes results from interviewing and engaging watershed stakeholders. Section 3 includes the inter-workings of the strategy. Sections 4 and 5 outline the United States Department of Agriculture Regional Conservation Partnership Program (USDA-RCPP) and Illinois EPA (Environmental Protection Agency) Clean Water Act Section 319 grants that will enable an impactful launch. Section 6 includes a chronogram and budget. Section 7 outlines immediate action items.

1.1 Foundations of the Long-Term Strategy

Substantial opportunities exist to leverage partner resources that will result in measurable improvements to lake water quality and protect and extend the recent \$92M dredging project.

1. **Leadership & Coordination:** Centralized leadership and coordination is critical to drive the program.
 - a. The City of Decatur is the logical entity to assume an active leadership role and serve as a central coordinator for long-term watershed planning and management.
 - b. Take advantage of partner and stakeholder strengths and enable them. Primary partners, other governmental jurisdictions and consultants (e.g., SWCDs and watershed consultant(s)) can provide the City with capacity and expertise to achieve long-term results.



Figure 2 , Four Strategy Foundations

2. **Leverage Opportunities:** Establish a foundation to bridge and leverage the many organizations and diverse activities that are currently underway.
 - a. For example, nearly \$10M of spending is planned for the watershed over the next five years from a range of stakeholders. This \$10M can be prioritized and leveraged to receive matching funds (e.g., federal funding through the USDA-RCPP).
 - b. Numerous stakeholders have complementary missions and objectives, and most operate independently. Harnessing and aligning efforts will yield substantial benefits and reduce redundancies.
3. **Subwatershed Sequencing:** Sequencing plans at a subwatershed scale rather than deploying a single plan for the entire 592,665-acre watershed is important. As subwatershed plans are completed, they can be synthesized into a cohesive plan encompassing the entire Lake Decatur watershed.
 - a. Criteria for sequencing include: proximity to the lake, nutrient and sediment yields, and opportunity for greatest lake impacts.
 - b. Subwatershed scale plans are necessary to secure implementation funding, especially through the Illinois EPA.
 - c. A synthesized and cohesive plan will continue to grow as subwatershed plans are completed. These plans hold the site-level detail and specifics needed to guide cost-effective implementation.
4. **Impactful Launch and Continuity:** Success requires early engagement, success stories, sustained actions, frequent communication, and consistent resources. The watershed program is not grant-dependent, however, securing outside funding will result in greater positive impacts in a shorter period, and reduce the financial commitment of the City. External funding will accelerate actions. For example, an award of a USDA-RCPP grant and Illinois EPA Section 319 grant in 2021/2022 would supplement resources and enable both an impactful launch and continuity with past investments.

1.2 Prospectus

Cost considerations, benefits, and outcomes are outlined based on successful execution of the LTS.

1. City cost considerations and financial benefits
 - a. **\$4M City expenditures.** This includes planned expenditures related to watershed activities (six years allocated to Macon County SWCD and watershed consultant) and not inclusive of City staff expenditure. Some City expenditures may be offset by revenue generated from development of special programs (i.e. sediment dewatering basin and existing crop ground). Illinois EPA 319 grants will also help offset watershed consultant costs.
 - b. **\$18M financial investments in the watershed.** This reflects state and federal grants that will be pursued.

2. Outcomes
 - a. **Reduction in sediment loading to the lake.** This will extend the life of recent dredging efforts and help to maintain capacity during drought periods. At current rates, capacity gained from dredging could be lost in as little as 50 years. Over \$1M per year of sediment currently enters the lake based on recent dredging costs. Future sediment removal will be more expensive and less feasible due to a changing regulatory environment.
 - b. **Decrease in use or elimination of nitrate treatment facility operation.** Reducing operational hours of the facility could save the City \$2.5M over 10 years.
 - c. **Enhanced partnerships and external investment.** Partnerships are drivers behind the LTS. Partner engagement will lead to financial and technical assistance opportunities and efficiencies in the delivery of conservation throughout the watershed.
 - d. **Community resiliency and support.** Lake and watershed efforts include meaningful public engagement. Transparency and regular communication of results are critical elements of the strategy and will enhance community support.

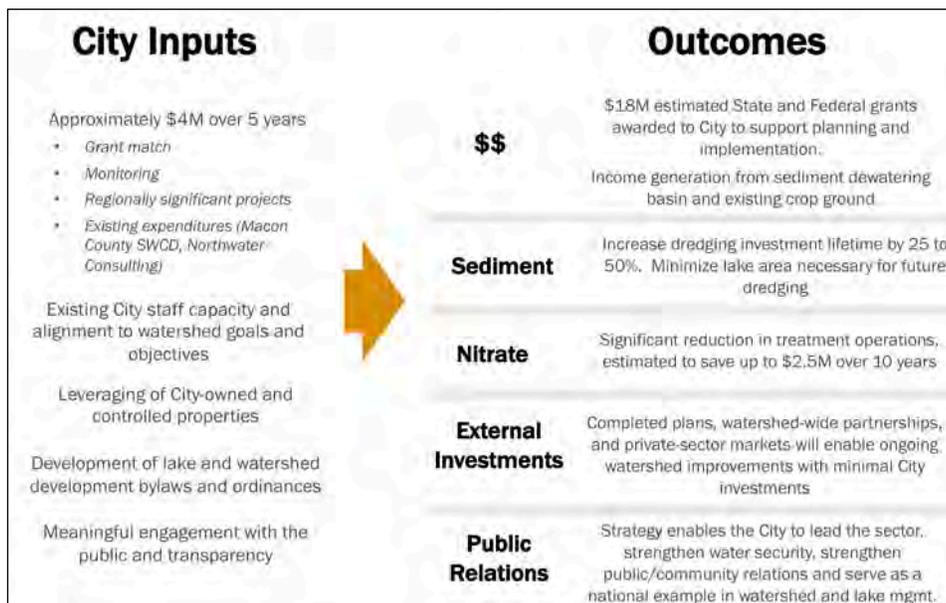


Figure 3 – Preliminary Summary of Five-Year Strategy Inputs and Outcomes

2 Stakeholder Engagement & Capacity

From April through October 2020, over sixty organizations were interviewed and introduced to the City of Decatur’s watershed initiative. Interest and associated stakeholder capacity were assessed to evaluate current activities, workloads and understand financial and staffing resources necessary to scale up efforts throughout the watershed.

A motivated network of partners is available to fill important roles in watershed management. An RCPP application is as an early-stage mechanism to build partnerships, establish common objectives, and secure and implement a federal grant program. It will provide resources and enable strong and sustained partnerships over the next five years and beyond. The initial RCPP application submitted in 2020 was not awarded. The application will be adjusted and resubmitted in the summer of 2021. In the meantime, partners are active, and work proposed in the 2020 application is underway even without federal funding.

Table 1 lists all stakeholders/partners engaged from April through October of 2020. A summary of roles and responsibilities of those supporting an RCPP are included in Section 4.

Table 1 – Inventory of Stakeholders and Partners Engaged

Category	Organization	Category	Organization
Landowners	Private landowners/Farmers (multiple)	Industry / Private Sector	Archer-Daniels-Midland (ADM)
National Government	United States Department of Agriculture		United Prairie LLC
	Natural Resources Conservation Service (NRCS)		Door4 Brewing and Decatur Brew Works
	US Army Corps of Engineers		Riggs Brewing
	United States Geologic Survey (USGS)		Topflight Grain Cooperative
Local Government	Champaign County SWCD		Anvil & Forge Brewing and Distilling
	DeWitt County SWCD		Landlocked Hops
	McLean County SWCD		DIGS Associates
	Piatt County SWCD		Rovey Seed Company
	Ford County SWCD		Anuvia Plant Inspired Products
	Macon County SWCD		Tate & Lyle
	Shelby County SWCD		Land O' Lakes (Truetera)
	Macon County Conservation District		ManPlan Inc.
	Macon County		Jimmy John's
	City of Decatur		Caterpillar
	City of Monticello		Crop-Tech Consulting
	Decatur Park District		Nutrien
	Decatur Sanitary District		Clarkson Grain Company
Foundation	Land Conservation Foundation		Growmark
	Howard Buffet Foundation		Martin Ecosystems
Media	WAND TV		Regenerative Agriculture Consulting
	Now Decatur (radio)		Growmark FS
Educational	University of Illinois		Covercross Inc.
	Allerton Park		Understanding Ag
	Lewis & Clark Community College		Farm Raise
	The Nature Conservancy		

Category	Organization	Category	Organization
Non-Governmental Organization	Iowa Agricultural Water Alliance		Diggs Associates
	Ecosystem Services Market Consortium (ESMC)		EcoMetrics
	Illinois Lake Management Association	Property Management	First Illinois Ag Group
	Illinois Nutrient Research & Education Council		Hancock Agricultural Investment Group
	Illinois Sustainable Ag Partnership	Trade Organization	Illinois Corn Growers Association
	American Farmland Trust (AFT)		Illinois Farm Bureau
	Agricultural Watershed Institute		Macon County Farm Bureau
	Macon County Women in Ag		Shelby County Farm Bureau
	Sand County Foundation		Ford/Iroquois Farm Bureau
State Government	Illinois Department of Natural Resources		McLean County Farm Bureau
	Illinois State Water Survey		DeWitt County Farm Bureau
	Illinois Environmental Protection Agency	Piatt County Farm Bureau	
		Champaign County Farm Bureau	
		Illinois Fertilizer & Chemical Association (IFCA)	
		Illinois Land Improvement Contractors Association (LICA)	

There is significant interest and willingness to engage and participate in planning and management across all sectors throughout the watershed. There are dozens of complementary missions, programs, projects, and activities. The opportunities to align and leverage investments are significant. The value that actionable watershed plans will have in guiding and prioritizing spending will result in more informed and prioritized investments.

“The legs, wheels and momentum are all in place, there just needs to be a driver and some choreography.”

The primary capacity gap is related to leadership and coordination that is necessary to scale up. The role of the private sector and the agricultural industry is also central to achieving success over the long-term. Currently, there is a capacity gap in terms of leadership that can creatively align and bridge businesses/industry. While the level of support and interest is strong, stakeholder engagement must be strategic and impactful. This requires a level of leadership, vision and coordination not currently in place at the scale necessary to advance the LTS.



Figure 4 - Primary Capacity Gaps to Achieve Regionally Significant Results

Table 2 outlines the high-level responsibilities necessary to execute the LTS. The first two items are critical responsibilities best suited for the City: (i) serving as the executive watershed program leader, and (ii) adapting asset management to the watershed program as it evolves. Limited capacity currently exists to absorb these responsibilities as they grow, without reprioritizing and/or hiring experienced and qualified staff.

Additional responsibilities outlined in Table 2 relate to the direct management and execution of watershed program activities. Currently, these are shared by watershed consultants and the Macon County SWCD via City contracts. The City can certainly consider filling some of these roles and responsibilities internally with reprioritization of staff and/or strategic hires.

Table 2 - City Responsibilities for Execution of LTS

City Responsibilities	Description	Key Roles	Notes
1 – Executive Leadership	Serve as figurehead and executive level role for the watershed program.	<ul style="list-style-type: none"> Grantee for applications and grants Liaison with City council, Public Works and other City departments Administer and oversee contracts related to watershed program and projects (e.g., Northwater & SWCD) Participate in select meetings with stakeholders 	Reprioritizing existing and/or securing additional staff. Currently, Keith Alexander and Matt Newell serve in this role. The effort will increase as the program advances.
2 – Asset & Lake Management	Existing City roles reprioritized to align with the LTS and watershed program as it evolves. Likely to require more staff time than what is now invested.	<ul style="list-style-type: none"> Regular lake and property management activities Reinstitute regular lake water quality monitoring – Volunteer Lake Monitoring Program (VLMP) Lake sediment dewatering basin management 	Possible with reprioritizing existing staff and/or securing additional staff.

City Responsibilities	Description	Key Roles	Notes
		<ul style="list-style-type: none"> Innovative management and use of City-owned lands to benefit the watershed DeWitt well field site activities Involvement in floating treatment wetlands and emerging trading programs 	
3 – Active Watershed Program Management	Watershed consultant or new City role(s) to be actively engaged and responsible for coordination, management and watershed outputs and outcomes.	<ul style="list-style-type: none"> Oversight and coordination with City staff, SWCDs and partners to implement planning and implementation mandates Coordinate with City staff on watershed and lake initiatives, such as monitoring Seek, apply for and administer/manage grants Build, develop and maintain partnerships with diverse stakeholders Coordinate and manage initiatives such as development of the Sediment Dewatering Basin, monitoring, residential landowner engagement, and regionally significant projects, etc. 	This role is currently served by the watershed consultant.
4 – Production-Level Activities	Watershed consultants, SWCD partners, and/or new City role(s) to perform planning and implementation activities.	<ul style="list-style-type: none"> Production-level activities such as compiling watershed plans, assessments, identifying project locations, performing GIS analysis, technical components of grant applications/reports, and monitoring 	This role is currently served by the watershed consultant and Macon County SWCD.

Strategic alignment between the City, SWCDs and watershed consultants can fill responsibilities and achieve significant watershed management goals. This would minimize staffing and management burden and enable engagement, as needed, with qualified experts best positioned to deliver success and results.

The City should continue to: (i) work with specialists to execute the watershed management program and LTS, (ii) provide direction to other key partners, such as the Macon County SWCD, and (iii) maintain alignment to goals outlined in Section 1.

3 Long-Term Planning & Implementation Strategy

3.1 Phased Approach

A phased approach was recommended for watershed planning and management and is consistent with the four LTS foundations. Phase I included developing a five-year strategy, performing a capacity audit, establishment of a monitoring plan, and clearly defining subsequent phases. Figure 5 outlines Phases II through IV encompassing a five-year program. Notable is that after five years, a very well-oiled machine and partnership system will be in place to maintain a consistent stream of funding and impacts.



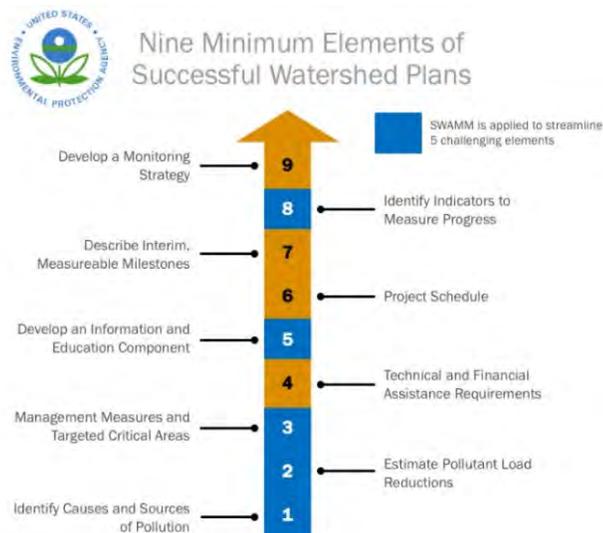
Figure 5 - Phases of Northwater Activities Supporting the Lake Decatur Watershed Program

3.2 Subwatershed Plan Sequencing

One of the four foundations of the LTS is to sequence Illinois EPA nine minimum element subwatershed plans so they can be more specific and guide implementation. As plans are completed, those areas will become eligible for state and federal funding. Grant writing and administration will become an ongoing and annual responsibility over the life of the program.

This sequencing strategy aligns with Illinois EPA priorities, which prioritize smaller geographic areas where planning can be more detailed and lead to action.

The Lake Decatur Bluffs was selected as a priority planning subwatershed. Selection criteria includes: (i) its proximity to



the lake and ISWS literature indicating high sediment delivery and, (ii) public property ownership which enables more shovel-ready project opportunities.

Although the subwatershed plans will be independent, the objective is to synthesize them into a consistent management framework as they become completed, and implementation occurs. An online management portal is recommended to enable cohesion across the larger watershed area (Section 3.5). Table 3 presents all the subwatersheds and the recommended sequencing chronology. Four of the nine subwatersheds will have a plan completed after the first Illinois EPA 319 grant. The remaining will be addressed in subsequent applications based on relative contributions of sediment and nitrogen yield to the lake.

Table 3 - Lake Decatur Subwatersheds Recommended for Plan Sequencing

Subwatersheds	HUC 12s	Initiation Year	Strategy / Notes
Bluffs	Lake Decatur Bluffs	2020	To be completed under Phase II of Northwater Contract
Sand Creek	Sand Creek	2021	Included in IEPA 319 Application #1 (submitted)
Wildcat/Willow	Wildcat Creek	2021	Included in IEPA 319 Application #1 (submitted)
	Willow Branch		
Friends Creek	Friends Creek	2021	Has current plan that needs updating. Updating plan is included in IEPA 319 Application #1 (submitted)
	Shiloh Chapel Friends Creek		
	Friends Creek Ditch		
	Kickapoo Creek		
Middle Upper Sangamon 1	Goose Creek	2022 - 2023	To be included in a future IEPA 319 application(s)
	Madden Creek		
	Camp Creek		
	Spring Lake		
	South Fork Camp Creek		
	Lake of the Woods		
Big Ditch	Big Ditch	2024-2025	Current plan expires in 2024; IEPA 319 grant to help fund plan update.
Big / Long Creek	Big & Long Creek	2024-2025	Current plan expires in 2024; IEPA 319 grant to help fund plan update.
Middle Upper Sangamon 2	Long Tree Creek	2025	To be included in future IEPA 319 application(s)
	Owl Creek	2025	
	Wildcat Slough	2025	
	Hillsbury Slough	2025	
Finley Creek	Finley Creek	2025	To be included in future IEPA 319 application(s)
Upper Sangamon	Dickerson Slough	2026	To be included in future IEPA 319 application(s)
	Corn Valley Creek	2026	
	West Branch Drummer Creek	2026	
	Town of Arrowsmith Sangamon River	2026	

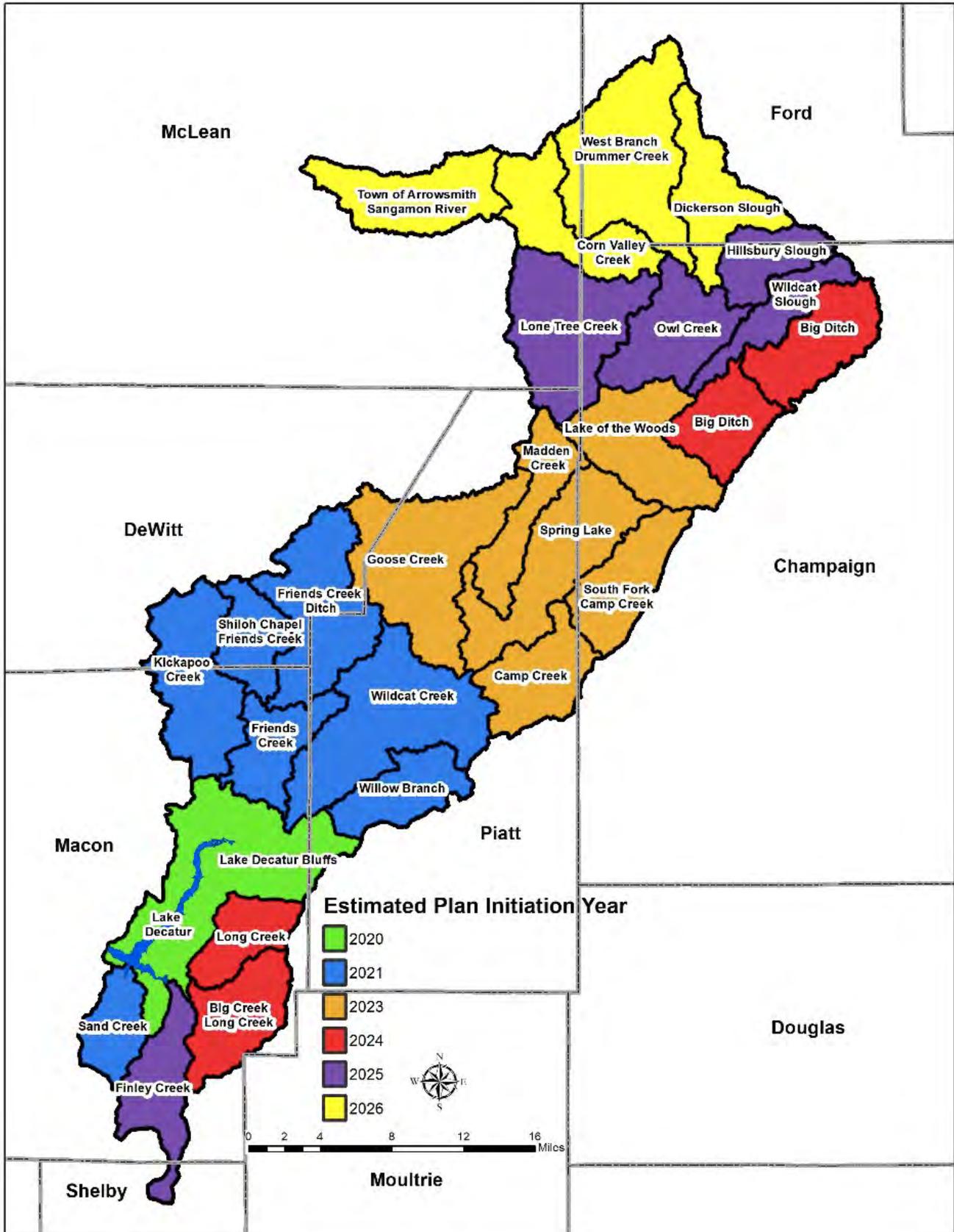


Figure 6 - Preliminary Sequencing Strategy for Subwatershed Planning

3.3 Prioritization of Public Properties

Leveraging opportunities is one of the four LTS foundations, and prioritizing activities on public properties is considered low-hanging fruit. Engaging on public properties also supports another LTS foundation - “Impactful Launch and Continuity.” As the City sets an example on its own property, landowners throughout the watershed will take notice and be much more likely to participate.

Decatur owns ground throughout the watershed including:

1. DeWitt County well field – 106 acres of tillable farmland and 14 acres of non-tillable ground.
2. Macon County tillable acres outside dewatering basin – approximately 30 acres.
3. Oakley sediment dewatering facility – approximately 500 acres (390 interior acres).
4. Various properties adjacent to or near Lake Decatur.

Development, modifications and alterations in the watershed and along the shoreline of Lake Decatur and its contributing waterways impacts water quality, infrastructure, and the efficacy to manage and maintain the system as a drinking water supply and recreational resource in a cost-effective manner.

This LTS recommends that the City take reasonable programmatic actions to update current ordinances and develop new ordinances, bylaws, easements and other restrictions that protect (i) the lake and water resources as they pertain to City-owned properties managed, sold or leased, and (ii) private properties subject to alterations, rezoning, improvements, and permits that require approval.

There are many examples and precedents from other growing municipalities that can be reviewed to support advancing this effort. Some areas that can be considered:

1. Shoreline and stream protection areas, buffers and lake bank stabilization.
2. Perennial, intermittent and ephemeral stream protection within a specified distance of the lake.
3. Highly erodible lands.

Management of properties should optimize return on investment while minimizing impacts. A “triple bottom line” can be adopted to incorporate sediment and nutrient loading into the decision-making framework.

Unique opportunities such can also be evaluated by property managers such as: (i) strategic land acquisitions, and (ii) transfers and conservation easements.

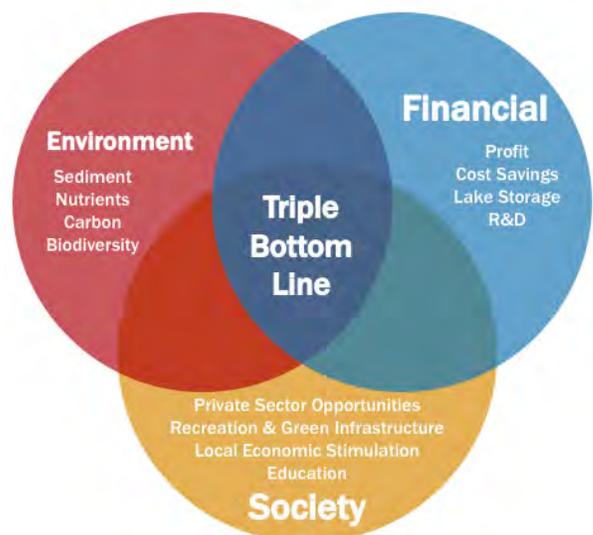


Figure 7 – Triple Bottom Line Approach for Public Property Management

3.4 Regionally Significant Projects

Regionally significant projects fall under two LTS foundations: (i) Leverage Opportunities and (ii) Impactful Launch and Continuity.

3.4.1 Development of Lake Sediment Dewatering Basin

The ~390-acre dewatering basin offers a unique opportunity to generate revenue, enhance community interest, and support the local economy through innovative and profitable farming practices. City expenditures related to the dewatering basin can be leveraged for grants and technical assistance. Some ideas to explore include:

1. Initiate land prep actions to prepare adequately dry areas for agricultural production. Several partners have expressed willingness to provide financial assistance and technical advice.
2. Consider growing organic crops capable of achieving a substantial premium.
3. Explore and consider participation in new and emerging carbon and water quality trading programs.
4. Explore specialty crops to supply local business and promote “locally grown.” These investments will yield financial benefits and a premium over traditional crops, and will engage local businesses and the community.
5. Use net profits to recoup costs associated with preparing and developing the basin. Direct profits can fund watershed projects and expenses, such as Macon County SWCD LTS activities and the City’s cost-share program.



Figure 8 - The Sediment Dewatering Basin in Oakley Township (facing West)

3.4.2 Public Land

The City owns a substantial amount of land within the watershed which presents unique opportunities. For example, tillable agricultural ground can be developed to leverage RCPP funds and maximize a return on investment. The following management and conservation measures are recommended for all tillable acres owned by the City outside of the dewatering basin.

1. Phase in cover crops, reduce tillage and apply initial costs as RCPP match. Demonstrating this commitment to conservation will fall in line with the triple bottom line approach, continue producing crop yields, and reduce nutrient and sediment loading to the lake. The demonstration sites will also garner local landowner support and engagement.
2. Develop nutrient management plans, conduct soil tests and field trials, and transition from fall to spring nitrogen application. More precise nutrient application will reduce input costs, optimize yields, and reduce nitrate loss. This will be a quick and immediate success story and result in substantial nitrogen reductions.

3.4.3 DeWitt Well Field

Practical modifications to the existing well site will yield long-term water quality benefits and generate opportunities for outside investment and positive stakeholder engagement. Recommendations are as follows:

1. Existing swale and basins - direct surface and tile flow to allow for denitrification. The current infrastructure can act as a “treatment wetland” with some retrofitting. During the rainy season, when the swale and basins are not used, they can treat tile flow and surface runoff with some retrofitting.
2. Riparian buffer zones – Install saturated buffers or other practices to treat adjacent surface and tile flow. Partners have expressed interest in providing technical assistance and potential funding.
3. Utilize the site for local education and outreach events, research field trials, and promote as an example of emerging conservation technologies.



Figure 9 - Existing swale (left) and one of the wells (right)

3.4.4 Carbon & Water Quality Trading Pilot

Participation in a carbon and water quality trading pilot program has the potential to provide long-term, market-driven benefits to the City and watershed, especially with the scale of industry in the region. The opportunity exists to generate recurring revenue from operation of City-owned property, as well as future benefits on private land. Sequestering carbon and actions that lead to measurable water quality benefits can be translated into marketable “credits” offered to buyers and, therefore, a return on investment from actions taken as part of the watershed effort. [A positive article on this subject was published in the Herald Review on October 14, 2020.]

1. Engage with trading partner(s) and execute a pilot feasibility program, perhaps to first focus on City-owned property and the sediment dewatering facility.
2. Engage with large corporations, such as Nutrien, ADM, Tate & Lyle, and Caterpillar.
3. Evaluate if the trading market can be developed watershed-wide to incentivize nutrient and sediment reductions in addition to carbon.

3.4.5 Floating Treatment Wetlands

Through preliminary analysis and informal consultations with staff at the Army Corps of Engineers (ACOE), it was determined that a permanent in-lake structure or sediment dam is not likely feasible due to limitations on sizing and the potential upstream hydraulic and flooding impacts. The LTS recommends that the City explore the feasibility of constructing a large system of anchored, floating treatment wetlands (FTWs) at the upper end of Lake Decatur. Based on current information, the best location appears to be immediately downstream of the recently dredged sedimentation trap.

1. FTWs do not raise water elevations or impact upstream areas and regulatory agencies indicate that they would likely achieve swift approval.
2. Recent studies indicate that properly designed FTWs can reduce peak nitrate concentrations by up to 40%.
3. FTWs enable larger proportions of entrained sediment to drop out prior to reaching the main body of the lake. Long-term sediment and nutrient reductions could be significant, as the river delta upstream develops and expands to naturally treat incoming pollutants.
4. The FTWs provide a unique habitat feature that will enhance fisheries and recreational value. A system can be designed to allow boat bypass.
5. Under Phase I, numerous groups have expressed interest in the concept and have pledged to assist with securing funding. FTWs enable a wide range of opportunities and will attract investment and resources for maintenance and management.



Figure 10 - Floating Treatment Wetland Examples (www.martinecosystems.com)

3.5 Watershed Assessment & Management Portal (SWAMM)

A core foundation to the LTS is leadership and coordination, and the use of a web-based platform can serve as an efficient way to align watershed stakeholders and manage activities. Sequenced subwatershed plans can be integrated together in an online system to reduce the complexity of documents and programs across the larger watershed. A centralized system with map data, analysis tools and project tracking will make planning, coordination and implementation more streamlined and effective.

Administration and management responsibilities for the portal would need to be established based on coordination between the City, consultants and stakeholders. The City and watershed program manager would be best suited as the portal “owner,” responsible for its administration and management. Updates and maintenance are included as part of the annual subscription service (software maintenance). The portal system is hosted on secure and backed-up web servers.

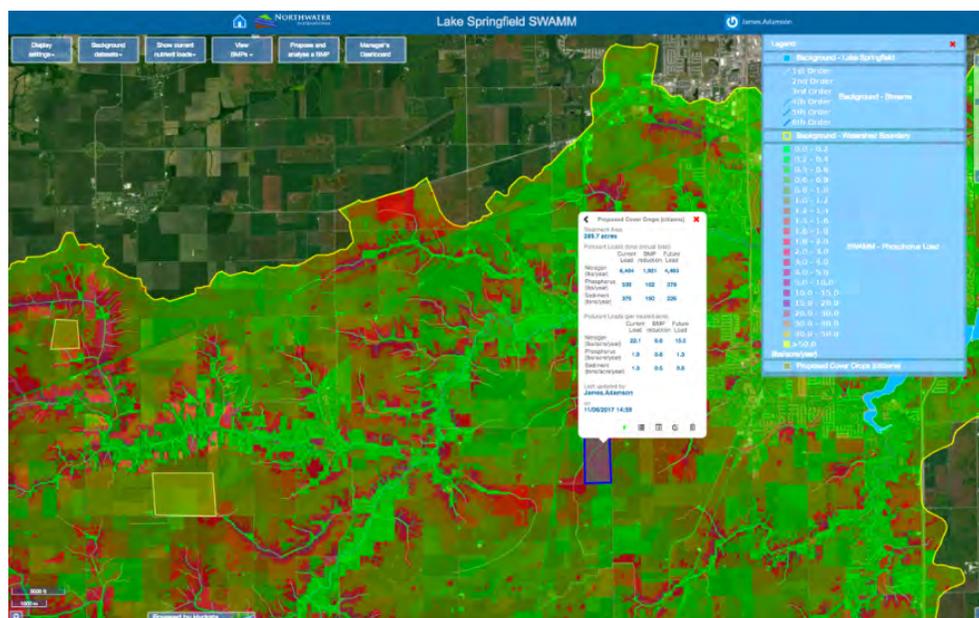


Figure 11 - Screenshot of SWAMM Online Portal

3.6 Grants & Funding

Leveraging City and partner commitments will create a consistent and impactful flow of funding for watershed planning and implementation through various grantors. Applications for two grant programs were submitted in 2020 and are further described individually in Sections 5 and 6. These two initial grants allow transition from planning to implementation rapidly and deliver strong momentum.

1. Regional Conservation Partnership Program (RCPP). \$10M was requested in the initial application for activities through 2026. As it was not awarded, a revised application will be submitted in the summer of 2021 based on feedback from the USDA.
2. Illinois EPA Section 319 Program. Grant applications will be submitted annually to support watershed planning, and strategic BMPs such as lakeshore and ravine stabilization, and regionally significant projects.
3. The Illinois Green Infrastructure Grant program (IGIG) will be explored for urban BMPs and other green infrastructure-related stormwater management projects.
4. Additional state and federal sources and loan programs will be explored for City properties and regionally significant projects.
5. Coordination with educational institutions to secure grants for research that provides additional value and advances the goal of improving water quality.
6. Continued exploration of private/corporate foundation funding in partnership with other organizations to expand initiatives in the lake and watershed. Key priorities identified so far include: Economic Development Corporation of Decatur-Macon County, Ducks Unlimited (RCPP partner), Pheasants Forever (RCPP partner), The Nature Conservancy, Howard Buffet Foundation, McKnight Foundation, the Mosaic Foundation, the Fertilizer Institute, and the Walton Family Foundation.

Section 6.2 outlines an estimated annual budget for activities that will address sediment and nutrient loading to the lake. Grant applications occur annually and are competitive, and not all applications are awarded. Persistence and a clear strategy will ultimately lead to funding opportunities. Continuity in seeking grants and leveraging partnerships will lessen the financial requirements that need to be made by the City.

3.7 Roles & Responsibilities

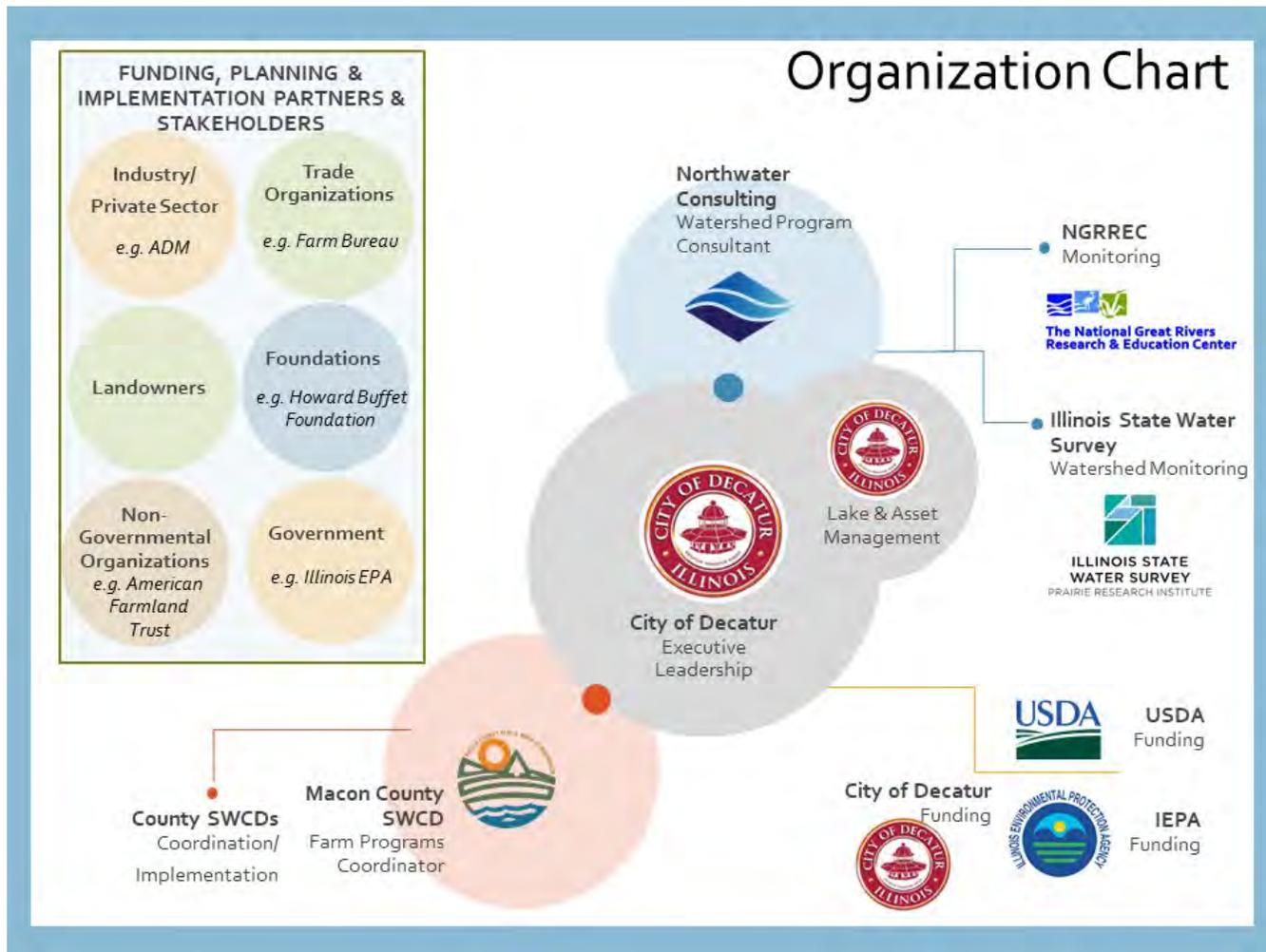


Figure 12 – Planning-level Organizational Chart for Long-Term Strategy

3.7.1 City of Decatur

1. Watershed Scale Executive Leadership

Based on Section 2, a key and necessary responsibility is to adopt the formal “executive leadership” role. This role has been very well served so far, however, the effort necessary will increase significantly as the program advances. The City may need to reprioritize existing staff or consider making a strategic hire(s) for support. Some key roles include:

- Grantee for grant applications and grants.
- Liaison with City Council, Public Works, and other departments.
- Administer, coordinate and oversee contracts related to the watershed program and projects (e.g., contractors, consultants and SWCDs).
- Participate in PR activities, relationship development and meetings with stakeholders.

2. City Staff

Section 2 outlined another City responsibility to restructure and reprioritize existing lake and property management activities to align with watershed program as it evolves. Existing staff resources are best applied to optimizing current operations and activities that enhance improvements to the lake and watershed. The following activities could be prioritized by City staff and guided by approved subwatershed plans:

- Monitoring support (lab analysis of water samples).
- Coordination between SWCDs and consultants/engineers – ongoing.
- Public communications and updates – ongoing.
- Lake shoreline stabilization – 2021 and beyond.
- Floating treatment wetlands as described in Section 3.4.5 and other City-owned construction projects – 2022 and beyond.
- Advancement of ordinances and bylaws as described in Section 3.3 – 2020-2021.
- Engagement with landowners in priority areas (ravines, lake shore, highly erodible lands, etc.) – ongoing.
- Public property management and beneficial use of dewatering basin as described in Sections 3.4.1 and 3.4.2 – 2021 and beyond.
- Oversight of newly acquired MS4 responsibilities – ongoing.
- With assistance, administer future lake and watershed-related grants – 2021 and beyond.
- Continue to support and enhance relationship with the Macon County SWCD/other SWCDs – 2021 and beyond.

Immediate priorities of City staff:

- Bluffs subwatershed plan and related City tasks such as public engagement (underway).
- Oversee new agreement with Macon County SWCD/other SWCDs.
- Resubmit RCPP application and continued engagement with partners alongside the watershed consultant.
- Support monitoring efforts (underway). This includes restarting the Volunteer Lake Monitoring Program and conducting regular sampling.

3.7.2 Soil & Water Conservation Districts

SWCDs in the watershed can serve critical roles and allow the program to connect with landowners and growers, and maintain a more ‘local’ presence decentralized from the City.

Financial support is provided to the Macon County SWCD. There is an opportunity for it to serve a critical role in the LTS and watershed program which is further described below. The LTS and watershed program is an excellent opportunity to review the present arrangement with the Macon County SWCD and optimize it so that it best aligns with the vision for the watershed program. It is important to play to the strengths of the SWCD staff and leverage and those abilities. It is also critical to structure arrangements with lower risks and impacts related to staff

turnover. The City must provide clear direction, expectations and outputs/outcomes for the investments made available to the SWCD(s).

The current level of City financial support can produce more value and meaningful results with some changes and shifting of responsibilities now that there is a strategy and watershed program underway. The City and watershed consultant should develop contract parameters based on a series of clearly defined deliverables, performance measures and tasks. Considerations to strengthen SWCD engagement will generate compound benefits.

1. Make the cost-share program available to all watershed counties. Recommended parameters include:
 - a. Incentive program for maintenance of existing conservation practices, such as cleaning out of terrace systems or re-shaping/seeding grass waterways.
 - b. Filter strip incentive program with lower 5-year annual rental payments. Program allows participating landowners utilize strips for temporary activities related to farming.
 - c. Prioritize locations by expected load reductions and aligned with up-to-date and approved subwatershed plans.
2. Targeted and one-on-one landowner outreach to support a future RCPP and other project priorities outlined in subwatershed plans.
3. Encourage coordination with other partners to deliver education and outreach in the larger watershed and participate in initiatives led by other entities.
4. Coordinate with and provide staff support for other county SWCDs; subcontract services as needed.
5. Oversee and manage administrative elements of a future RCPP, including partner coordination and reporting.
6. Partner with other entities to explore additional grant opportunities for watershed improvements.
7. Contribute to subwatershed plan development. For example, but not limited to:
 - a. Inventory and map all existing BMPs and create a database; other mapping tasks as assigned.
 - b. Conduct field surveys and inventories to support/identify project locations and target implementation activities.

The City should consider the following parameters for engagement with the Macon County SWCD moving forward:

1. Align the new SWCD contract and tasks with a future RCPP and subwatershed planning. Consider assigning near-term tasks to support the Bluffs subwatershed plan.
 - a. Define and establish clear and related performance measures, deliverables and tasks that directly support the LTS and watershed management program.
2. Maintain current staffing budget to execute a reasonable workload associated with administering the cost-share program, grant management/tasks, subwatershed planning and support, education and outreach events, and one-on-one landowner engagement.
 - a. Establish task deadlines.
 - b. Establish regular reporting of hours by assigned task.
 - c. Provide contractual opportunities for task and deliverable-based services beyond current staff allocation. This may include technical service provider needs paid for with federal funds.

Other SWCDs

The City should consider arrangements with other county SWCDs; this is best done after optimizing the program with Macon County.

3.8 Watershed Consultants

Experienced watershed specialists are well positioned to serve the City and provide long-term program management and technical capacity. Consultants can provide guidance, help to direct resources, and oversee the execution of grants, projects and the long-term program. Ultimately, the City will need a firm to execute the following.

1. Develop subwatershed plans in accordance with the sequencing described in Section 3.2.
2. Provide direction with respect to external contracts, including defining tasks, establishment of performance measures and overall guidance.
3. Coordinate and administer grants and implementation projects on behalf of the City and coordinate with partners.
4. Seek out additional opportunities and resources that will generate funding. Assist with grant applications.
5. Provide technical and engineering support for regionally significant projects and initiatives.
6. Provide guidance to staff on lake, watershed and urban area management.
7. Oversee lake and watershed monitoring.

4 Lake Decatur Regional Conservation Partnership Program

4.1 Summary

Strategically, the RCPP is a major launch point and pillar for the management program and LTS. An application for the five-year program initiated in March 2020 and was submitted on November 30, 2020. The application was not awarded and will be adjusted and resubmitted in the summer of 2021. Several partners from the 2020 application are following through on their commitments even without the grant award. This section summarizes the application and how the RCPP will be structured if it is awarded.

The RCPP program:

1. Enables the development and strengthening of partnerships that will extend beyond the life of the grant.
2. Addresses the key sources of sediment and nitrate loading to Lake Decatur.
3. Prioritizes funding for projects that address agricultural parcels and generate the greatest return on investment or “bang-for-the-buck.”

All other activities outlined in the LTS are complementary and provide leverage to help secure the federal funding. The RCPP requires that applicants raise a minimum of one dollar for each dollar requested. This can be in the form of cash expenditures and/or staffing resources. Activities and expenditures related to RCPP objectives can be considered as match.

The Lake Decatur RCPP goals are: (i) to improve water quality by reducing sediment and nutrient loading to waterways, and (ii) protect/enhance habitat. If awarded, funds will be allocated to landowners and growers through cost-share agreements for a suite of practices listed in Table 4.

4.2 Anticipated RCPP Activities & Scope

The RCPP will focus on six categories of effective practices that will reduce nitrogen and sediment loading, improve soil health, intensify in-field management and the application of structural practices, and improve the timing and placement of fertilizer. The overall goal is to achieve measurable improvements in water quality, while generating meaningful grower partnerships and economic benefits. Each practice will be targeted to those areas where the highest annual loadings of sediment and nutrients are occurring.

Table 4 - RCPP Implementation Projects

RCPP Practices	Description
Cover Crops	Cover crops are a key soil health practice and can protect the soil during the months following harvest through early spring when soil is most vulnerable to erosion. Our focus will be on planting cover crops before beans to minimize losses through tile drainage. We will deploy a team of area farmers to “coach” others on the phasing in of cover crops and offer extended 5-year contracts (with diminishing rates in later years) to demonstrate the soil health benefits and get participants “dialed in” so we can maintain those cover crops beyond the RCPP. We DO NOT intend cover crop adoption to be a one-off where growers revert to traditional practices when the cost-share is gone.
Reduced Tillage Practices	Conservation tillage, reduced tillage, no tillage, and strip tillage are select reduced tillage practices that will be targeted to those fields that generate the greatest per-acre sediment and phosphorus loads and those locations where conventional tillage is being performed on highly erodible lands.
Nutrient Management	Nutrient Management Plans will be promoted and targeted to those areas with the greatest need. A team of Technical Service Providers and Ag retailers will work directly with growers to reduce or eliminate the fall application of nitrogen, using soil testing and precision application and timing to get nutrients to the plants when it is needed and not before. The team will help growers realize the Return on Investment (ROI) from doing so.
Filter Strips	Filter strips will be offered as five-year contracts at lower cost-share rates by allowing landowners to return these areas to production, if needed. Initial outreach indicates that more wide-spread adoption will occur if this type of incentive is offered.
Constructed Wetlands	This structural practice will be offered where planning has identified load reductions can be maximized. In addition, we will work with watershed partners that own and maintain permanently protected areas to develop wetlands that drain adjacent crop ground.
Drainage Water Management & Saturated Buffers	These edge-of-field practices will be targeted to priority locations where treatment of tile nitrogen can be maximized. We will look to offer automated DWM systems and propose practical changes to existing design standards such as revisiting the LiDAR exclusion. Our team will offer hands-on training to ensure the timing of water management is consistent with periods of high nutrient loading and to increase adoption.
Targeted Structural Practices	Strategic and very targeted structural practices will be offered including grassed waterways, terraces/water and sediment control basins, field borders, and grade control structures.

Local partners (i.e., County Farm Bureaus and Ag retailers) will conduct outreach to targeted areas, relying heavily on private sector resources to provide the needed capacity. All work will be guided by subwatershed plans and a robust water quality monitoring program. As part of the LTS, these plans will identify individual sites and critical areas for the implementation of priority practices. Addressing areas that produce the highest nutrient and sediment loading will achieve the greatest return on investment.

4.3 RCPP Partner Summary

Government - units of government will play key roles in leveraging the execution of the RCPP, as well as complementary watershed initiatives and regionally significant projects previously discussed.

Agricultural & Trade Organizations - groups such as state and county Farm Bureaus, are critical to the RCPP. These organizations will be responsible for outreach, coordination and technical assistance.

Private Sector – Engineers and consultants, soil health and crop specialists, farm managers, ag retailers, technology companies, and corporations make up a large portion of the RCPP team. The intent is to have the private sector take the lead as it is uniquely positioned to leverage substantial financial and technical resources and manage on-the-ground conservation in a timely fashion.

Non-Governmental Organizations (NGO) - NGOs operate in the watershed and work with the farming community and others to promote and forward conservation and innovation. Several key partnerships have been formed to leverage those staff resources and directly benefit the RCPP.

Institutional - institutions, such as the University of Illinois and other research-based entities, will provide valuable in-kind services to help in measuring outcomes. Several entities have agreed to allocate existing research programs and resources to the watershed and partner with the City and Northwater to execute an expansive water quality monitoring program. These resources will leverage RCPP dollars and provide value.

4.4 RCPP Budget

Based on federal funding limits and anticipated partner contributions from the 2020 application, a total project value of up to \$25.7M is expected and outlined below:

1. \$10M in federal RCPP funding
 - a. \$7.0M for direct payments to landowners/growers for conservation practices. The USDA can award less than requested.
 - b. \$3.0M for technical assistance, outreach, enhancement activities, survey, design, and engineering. These funds will be provided to the City to administer and allocate to other groups and individuals assisting in executing the RCPP.

2. \$15.7M in partner contributions
 - a. \$4M City of Decatur, primarily leveraging of existing expenditures.
 - b. \$11.7M in partner contributions, including cash and in-kind services.

5 Illinois EPA Section 319 Grant #1

5.1 Summary

The first Illinois EPA Section 319 grant application was submitted in August 2020. The grant application includes funding requests for project implementation and subwatershed planning. This grant award will allow the City to immediately start addressing sediment and nutrient loading at high-priority locations near the lake. It will also help fund the costs of planning.

5.2 Grant Activities

The first grant application includes the following activities:

1. Construct a series of treatment wetlands in the Big/Long Creek and Friends Creek subwatersheds. The sites are on permanently protected Macon County Conservation District property. Expected annual load reductions to Lake Decatur: 588 lbs nitrogen, 122 lbs phosphorus, and 243 tons sediment.
2. Update old, outdated, or existing subwatershed plans focusing on areas downstream of Monticello where the ISWS has indicated sediment yields are highest. In partnership with the Macon, DeWitt, and Piatt SWCDs, improve the Friends Creek plan to include site-specific projects. Subwatershed plans for Sand Creek, Wildcat Creek and Willow Branch also will be completed.
3. Stabilize a severely eroding forested gully in the Bluffs subwatershed, adjacent to Lake Decatur. This site contributes excessive sediment and nutrient loads and is expected to achieve annual reductions of 239 lbs nitrogen, 106 lbs phosphorus, and 172 tons sediment.

5.3 Budget

The Illinois EPA Section 319 program requires a minimum 40% match contribution. Total cost of the current (submitted) application is \$250,000.

1. \$150,000 of federal funds.
2. \$100,000 of combined City, Macon County Conservation District, and private landowner funds.
 - a. City of Decatur - \$72,880. These funds have been proposed by Northwater in Phase III and will leverage an additional \$109,320 of grant funds to complete a series of subwatershed plans.
 - b. Macon County Conservation District will provide \$15,120 of contractual match to construct treatment wetlands. This contribution will leverage \$22,680.
 - c. A private landowner adjacent to the lake will provide \$12,000 of time and materials to stabilize an eroding stream channel. This contribution will leverage \$18,000.

6 Long-Term Strategy Timeline & Budget Simulation

The LTS requires significant financial resources to achieve desired outcomes for Lake Decatur and its watershed. Sections 4 and 5 outline two primary grant programs targeted to leverage City investments and secure a significant portion of the financial resources to implement. Grant resources are considered very important to accelerate action and reduce financial and administrative burden.

Regardless of the source(s) of funding, the strategy presented remains largely the same. Without the support of grants, similar results can be achieved but would require more significant financial and staff investment from the City (e.g., \$20M versus \$4M). The timeline of the LTS would also be affected because grant periods and associated terms and conditions influence partner involvement and how the LTS is executed. Outreach investments have created partnerships that will remain and can be leveraged to some degree even without grant programs.

In the absence of grants, greater investments will be necessary to maintain impactful partnerships and develop projects. The City would need to create and administer producer incentive programs and micro-manage hundreds, or perhaps thousands of projects and transactions. The LTS timeline and budget is presented considering grant support, and outlines what things may look like with the reduction of such support.

6.1 Timeline

6.1.1 Grant Supported

Figure 13 outlines a timeline for the LTS based on significant grant support. The timeline spans from 2020 through 2026 and is primarily driven by the five-year period of an RCPP which would could start in late 2021 if awarded. Illinois EPA 319 grants will be applied for annually as sequenced plans are completed and approved. The first application was submitted in August 2020.



Figure 13 – Long-Term Strategy Timeline with Grant Support

6.1.2 Reduced Grant Support or No External Support

In the absence of grant or financial support, the timeline could at least double to achieve goals and objectives. The duration would depend on whether any grants are received, and the level of annual funding the City is willing to commit. Even if Decatur is committed to the same annual influx of financial resources as grants, watershed partnerships would likely be less impactful.

6.2 Budget Simulation

6.2.1 Grant Supported

Table 5 outlines a financial simulation of the long-term strategy for planning purposes. Over a six-year period, over \$10M of direct (not including match) funding will have been generated resulting from City investments. Large-scale projects, infrastructure and substantial watershed and water quality benefits will be realized, while minimizing costs to the City. The net financial return on investment of the LTS is conservatively estimated to be greater than \$6.5M, or 185%.

The City expenditures over six years are estimated at \$4M, much of this already allocated. These expenditures are leveraged to bring in an additional \$11.7M into the watershed over six years.

Table 5 – Planning Level Financial Simulation of Long-Term Watershed Program

	2021	2022	2023	2024	2025	2026	Total
Program Expenditures							
Program Consultant	\$299,463	\$225,000	\$155,000	\$155,000	\$155,000	\$115,000	\$1,104,463
Grant Management	\$50,000	\$100,000	\$100,000	\$100,000	\$100,000	\$50,000	\$500,000
SWCD Watershed Cost Share	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$300,000
SWCD Staffing	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$720,000
ISWS Monitoring	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$180,000
Other (i.e. SWAMM)	\$25,000	\$70,000	\$4,000	\$4,000	\$40,000	\$6,000	\$149,000
Project Expenditures							
Dewitt Well Site	\$9,000	\$30,000	\$3,200	\$3,200	\$3,200	\$3,200	\$51,800
Dewatering Basin	\$150,000	\$60,500	\$80,500	\$10,000	\$10,000	\$10,000	\$321,000
Floating Wetlands			-See Breakout Budget Simulation-				
Lake Bathymetry	\$150,000	-	\$30,000	-	\$30,000	-	\$210,000
Net Projected Expenditures	\$883,463	\$685,500	\$572,700	\$472,200	\$538,200	\$384,200	\$3,536,263
Watershed Income							
IEPA 319 Income	\$50,000	\$100,000	\$150,000	\$200,000	\$150,000	\$100,000	\$750,000
RCCP Grant Income	\$500,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$500,000	\$9,000,000
Other Income / Grants*	\$25,000	\$42,000	\$52,000	\$73,000	\$73,000	\$80,000	\$345,000
Net Watershed Income	\$575,000	\$2,142,000	\$2,202,000	\$2,273,000	\$2,223,000	\$680,000	\$10,095,000
Net Financial Gain / (Loss)	(\$308,463)	\$1,456,500	\$1,629,300	\$1,800,800	\$1,684,800	\$295,800	\$6,558,737
Financial ROI on City Expenditures	-35%	212%	284%	381%	313%	77%	185%

Table 6 outlines a possible budget simulation for the floating treatment wetlands project. The feasibility study will support further advancement of this project. Approximately \$4.8M is estimated for feasibility, engineering and construction. Based on preliminary due-diligence of funding sources, it is estimated that \$3M - \$4M of grant funding could be secured if it does advance. The sediment and nutrient benefits and ROI will be determined during the feasibility process.

Table 6 - Planning Level Financial Simulation of Floating Treatment Wetlands Project

	2021	2022	2023	2024	2025	2026	Total
Floating Treatment Wetlands							
Feasibility Studies & Grant Applications	\$4,500	\$55,000	-	-	-	-	\$59,500
Engineering & Permitting	-	-	\$74,000	\$22,000	\$22,000	-	\$118,000
Construction	-	-	-	\$2,250,000	\$2,250,000	-	\$4,500,000
Monitoring / Maintenance	\$150,000	-	\$30,000	-	\$4,500	\$12,500	\$197,000
Net Projected Expenditures	\$154,500	\$55,000	\$104,000	\$2,272,000	\$2,276,500	\$12,500	\$4,874,500
Income							
Grants	\$25,000	\$42,000	\$52,000	\$1,750,000	\$1,750,000	\$80,000	\$3,699,000
Net Income	\$25,000	\$42,000	\$52,000	\$1,750,000	\$1,750,000	\$80,000	\$3,699,000

6.2.2 Reduced Grant Support or No External Support

With the absence or reduction of grant funding and other supporting resources, the LTS can still be implemented. Under such a scenario, the City will need to invest substantially more financial resources and rely more heavily on the private sector, existing staff and partnerships to achieve the same level of results. As noted in Tables 5 and 6, approximately \$20M would be needed to execute the proposed LTS without the support of any grant funds.

7 Immediate Next Steps

The immediate next steps are included and incorporated into Northwater’s Phase II contract and scope of services.

Table 7 - Immediate Next Steps for Long-Term Strategy

Phase 2 Activities	Description
Task 2.1. Nine Element ¹ Watershed Plan and 319 Application – Bluffs Watershed <i>¹Nine minimum elements for planning are defined by the EPA that make the plan eligible for grant funds</i>	Complete subwatershed plan. Apply for section 319 implementation grant for Bluffs subwatershed.
Task 2.2. City Property Assessment and Planning	Continued support in assessment, planning and management of the dewatering basin. Assessment of City-controlled properties and development of a plan to capitalize on opportunities to improve water quality. Support the City in developing guidelines and by-laws for lakeshore property transactions.
Task 2.3. United States Department of Agriculture (USDA) Regional Conservation Partnership Program (RCPP) application resubmittal	Adjust the 2020 application based on USDA comments and resubmit grant application – summer, 2021.
Task 2.4. Advancement of Special Projects and Initiatives	Phase I identified special projects and initiatives that warrant special attention and advancement due to the potentially significant water quality benefits and RCPP leveraging opportunities.
Task 2.5. Monitoring Program	Coordinate with the Illinois State Water Survey (ISWS) regarding monitoring at three stations (Sangamon at Cisco Bridge, Long Creek, Friends Creek). Design and install automatic monitoring station at Cisco Bridge in partnership with NGRRC - to be completed after RCPP award notice. Perform storm-event sampling at three stations and baseline monitoring of potential BMP sites. Manage database. Lake sediment monitoring plan, with first bathymetry survey to occur in the Fall of 2021.

8 Appendices, Addendums & Amendments

This section is a placeholder and intended for cataloging advancements, developments and modifications with regards to the LTS as the watershed program advances and evolves.