Lake County Public Works Department

Capital Improvements Plan 2013-2018

LakeCounty
Public Works Department

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Capital Improvements Plan 2013-2018

Presented by

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Endorsed by

Public Works and Transportation
Committee of the Lake County Board

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Our Mission

To provide drinking water and wastewater treatment services in an efficient, reliable and safe manner that meet or exceed the expectations of our customers and satisfy all local, state and federal requirements.

August 6, 2013

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Section 1
Executive Summary

Section 1
Executive Summary

The purpose of this report is to present the Department's long range plan for capital projects to the Public Works and Transportation Committee of the Lake County Board. It is intended to present Department planning information in an informative and comprehensive format. Committee members are asked to comment on this report so that subsequent annual Capital Improvement Plans can be improved.

The Public Works Department provides essential water and wastewater services to over 40% of the County's residents. The assets employed for these services are typically not highly visible. For example, buried water mains and sewers, while necessary to maintain sanitary conditions and a thriving community, are out of sight. Pump stations and treatment facilities are more visible, though not seen on a daily basis. The most visible components are water towers.

Most Department assets are built to provide long term service. The heavy duty mechanical systems will last for 20 to 30 years, while buried pipelines will last 50 to 100 years. All assets require Department attention to provide efficient, reliable and safe service. This report addresses the capital improvements proposed for these assets for the period of 2013 to 2018.

This report outlines the Department's priorities with respect to captial projects. The first priority is **System Preservation.** The replacement value of the Department's assets is estimated to exceed $1 billion. All assets (excluding land) deteriorate over time. Continuous improvements are necessary to counter the long term decline of asset value.

The second priority is **System Modernization and Regulatory Compliance**. Modernization typically involves replacing existing systems or components with new technology that performs better, while regulatory compliance addresses improvements necessary to stay current with ever changing environmental regulatory requirements.

System Expansion is the third priority. System expansion is related to extending service to new customers. The ranking for expansion recognizes that maintaining service to existing customers has priority over expansion of service to new customers.

The Department operates as the County's only enterprise fund, supported entirely by funds generated within the Department. The Department uses no County General Fund tax support. The total funding included in the Capital Improvement Plan for the Years 2013 through 2018 is $75,809,000.

This report includes the following sections:

- **Section 1 – Executive Summary.** (This section).
- **Section 2 – Department Overview.** This section briefly describes the overall size and structure of the Department.
- **Section 3 – Long Range Capital Program.** This section describes the Department's priorities for capital projects and provides general guidance regarding the long range need for capital projects.
- **Section 4 – Capital Improvement Program 2013–2018.** This section describes each specific capital project. Each description includes the fiscal year(s) for the project and the anticipated costs. It also includes tables summarizing the projects for each year of the planning period.
- **Section 5 – Funding.** This last section summarizes the capital needs on an annual basis and presents the anticipated sources of project funding.

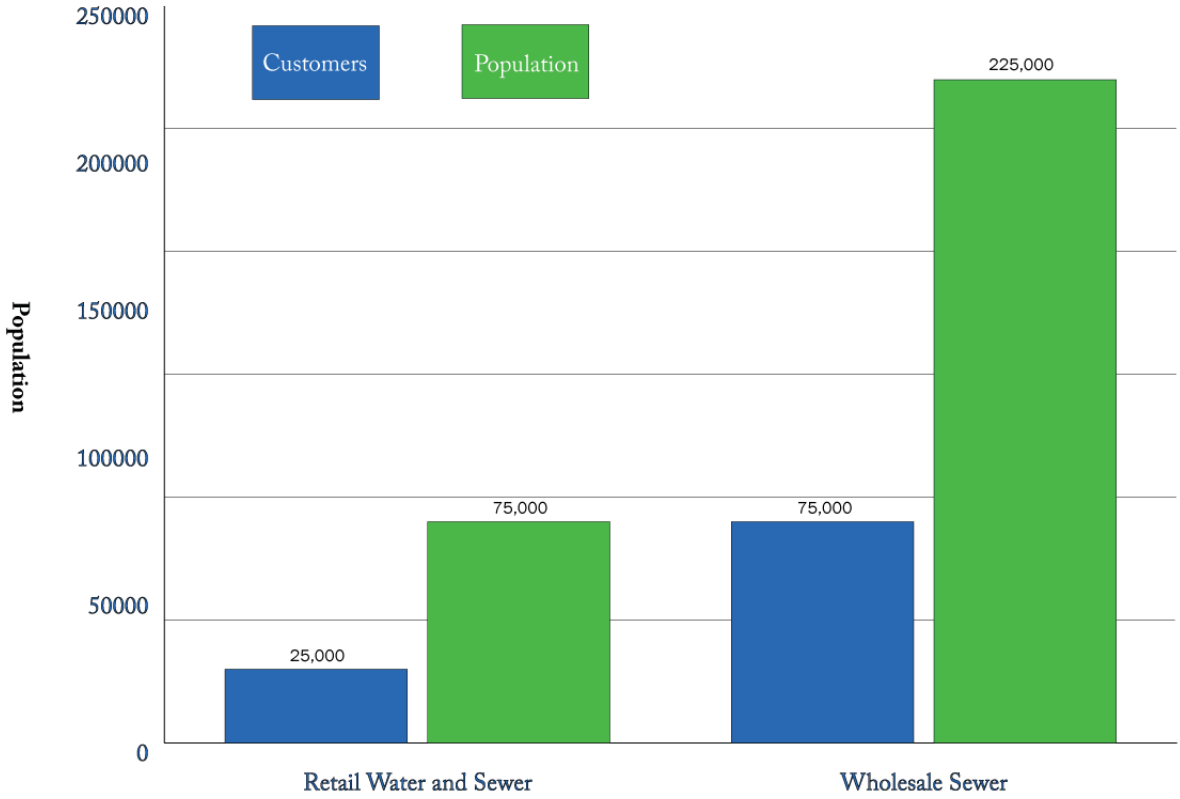
Section 2
Department Overview

Section 2
Department Overview

SERVICES

Lake County, through the Public Works Department, owns operates and maintains twelve public water systems, seven sanitary sewer systems, four wastewater reclamation facilities, and five regional interceptor sewer systems. The department has 98 full-time employees dedicated to providing daily water and wastewater services to 300,000 residents of Lake County, which is over 40% of the County's total population. The system provides services to businesses and residents as follows:

Figure 2-1
Population Served



GOVERNANCE

The Department of Public Works was created by a resolution of the Lake County Board on October 9, 1962 under the provisions of the State of Illinois County Public Works Act of July 22, 1959. The Department reports to the Lake County Board through the Public Works and Transportation Committee.

The Public Works Department is Lake County's only Enterprise Fund and is funded solely by revenue generated from connection fees and user fees from its customers. The Department receives no County General Fund tax money.

DEPARTMENT ASSETS

Current physical assets of the Department include the following:

Table 2-1
Potable Water

Quantity	Item
8	Elevated water towers
37	Ground water wells
10	Ground level water reservoirs
291	Water main (miles)
3,727	Fire hydrants
3,739	Valves
20,060	Water meters

Table 2-2
Wastewater

Quantity	Item
4	Water reclamation facilities
5	Regional interceptor sewer systems
6	Major pump stations
7	Local sanitary sewer systems
36	Force main (miles)
64	Lift stations
326	Gravity sewers (miles)
7,930	Manholes

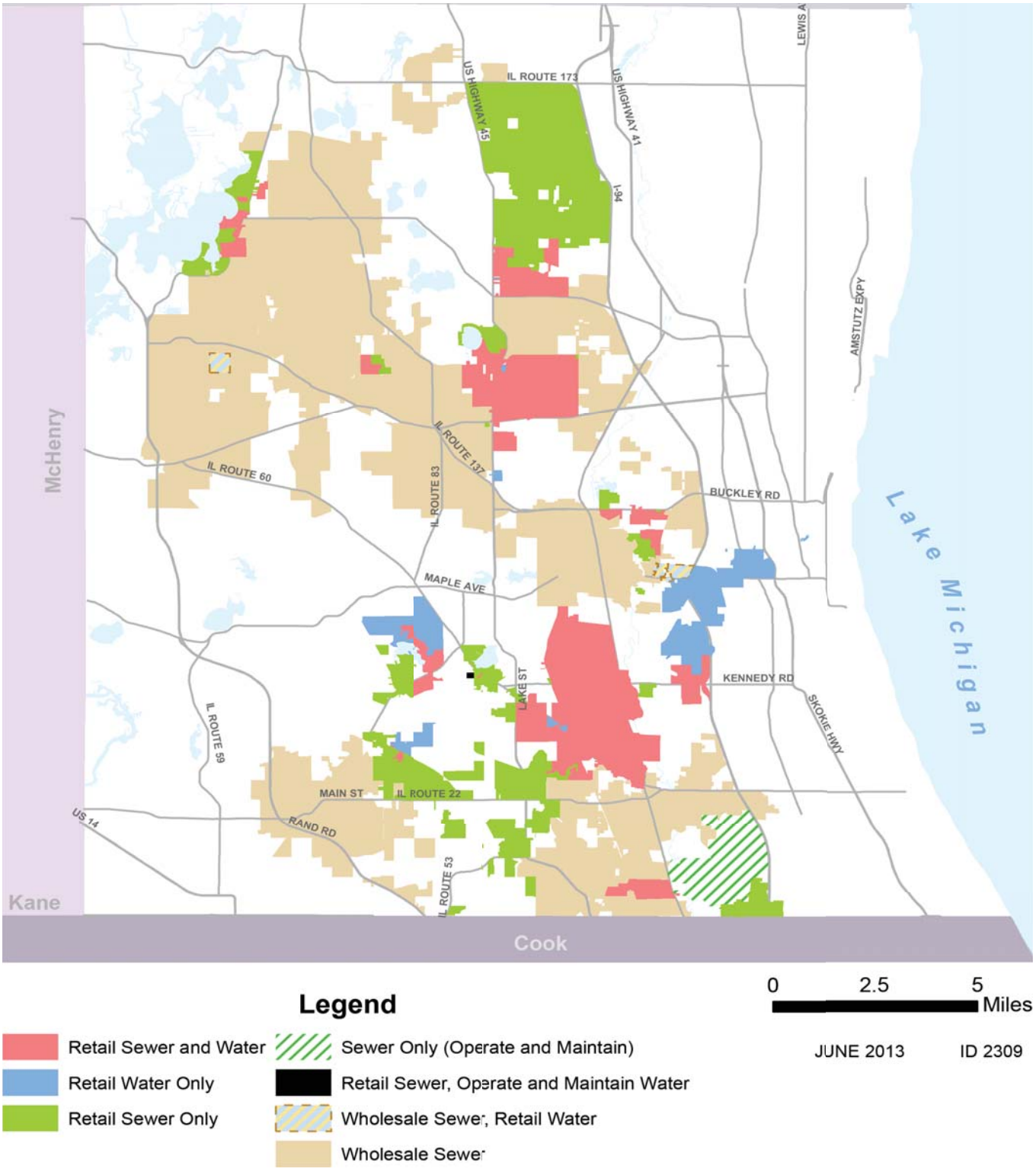
Other Assets

Additional assets owned by the County include an administration building, environmental laboratory, maintenance facility, meter shop, equipment garage, and the North Libertyville Estates Levee.

The investment value of all of the Public Works Department assets is approximately $346 million, and the replacement value all of the existing assets is estimated to be over $1 billion. Management of this large asset base requires a capital investment program to maintain the function and value of these assets.

Figure 2-2 on the following page contains a map detailing Lake County's service area

Figure 2-2
Lake County Public Works Service Areas



Section 3
Long Range Capital Program

Section 3
Long Range Capital Program

Capital projects are the construction of physical components which are expected to provide many years of service. These projects would include, for example, pipelines, pumping facilities, treatment plants, and storage tanks. The Public Works Department capital projects are used to address the following three Department priorities:

System Priorities

- System preservation
- System modernization and regulatory compliance
- System expansion

SYSTEM PRESERVATION

All of the Department assets, with the exception of real estate, have a continuing loss of value as the assets age and deteriorate. Some assets, such as pipelines and concrete tanks, are usually estimated to have a service life of 70 years, after which time they will need renewal or replacement. Some of the Department's heavy duty mechanical assets, such as pumps, aeration blowers, and filtration equipment, have an estimated service life of 25 years. Finally, other assets, such as trucks, laboratory equipment and computers, have service lives of 5 to 10 years.

The long range capital plan includes the investment needed to renew or replace assets as they approach the end of their service life. The replacement value of the Departments assets is over $1 billion. Assuming an average asset service life of 50 years, the annual capital expenditure needed to preserve the Department's assets is $20 million. This value will increase over time as the asset base of the Department grows to serve more people.

System Preservation Project Examples

- Lining a deteriorated gravity sewer
- Painting a water tower
- Refurbishing a lift station

SYSTEM MODERNIZATION AND REGULATORY COMPLIANCE

Modernization of Department assets typically involves the replacement of existing components with new devices that perform existing processes more efficiently. The improved performance must be quantifiable, so that the improvement pays for itself within a defined period of time. Essentially, investing capital in modernization results in operational cost savings.

New regulations governing potable (drinking) water arise from time to time typically requiring additional water treatment to meet the new standards. New regulations in wastewater usually address a new environmental protection issue, and result in improvements in sewer systems, wastewater treatment or wastewater sludge processing. Complying with new regulations can call for capital investments, additional operating costs, or a combination of capital investments and additional operating costs.

Both modernization and evolving regulatory compliance are difficult to forecast on a long range basis, except to say that there will be future changes required, resulting in necessary improvements. The magnitude of the investments should be similar to historic investments in this category. Annual long term average costs for modernization and regulatory compliance are anticipated to be $5 million per year.

System Modernization and Regulatory Compliance Project Examples

- Installation of Supervisory Control and Data Acquisition (SCADA) system to monitor facilities remotely
- Replacing electrical components with high efficiency modern equipment
- Adding phosphorus removal systems to comply with new environmental regulations

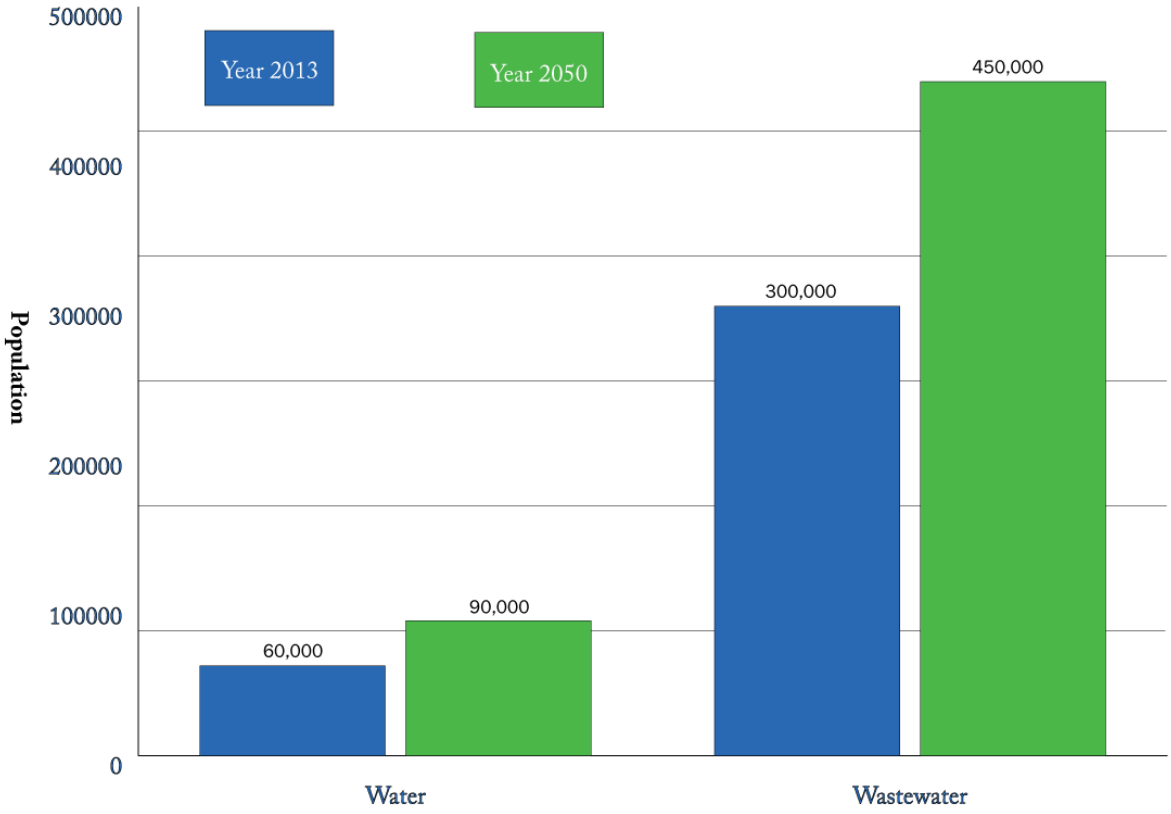
SYSTEM EXPANSION

The population of Lake County is approximately 700,000 people. The Public Works Department provides potable water to about 60,000 people (20,000 residences) which is about 9% of the county, and provides wastewater service for about 300,000 people (100,000 residences) or about 43% of Lake County. The demand for water and wastewater service from the Department is expected to increase as population increases, and may increase even more as communities ask the Department for service.

A number of studies have been published estimating water demands for Lake County as well as the entire region. One of the most detailed studies is the "Regional Water Demand Scenarios for Northeastern Illinois: 2005-2050," which was prepared for the Chicago Metropolitan Agency for Planning (CMAP) and was prepared by the Department of Geography and Environmental Resources of Southern Illinois University Carbondale. The population projection shows a 38.5% increase in the county population from 2005 through 2050 to about 970,000 people.

The study projected water demands under three different scenarios. The first scenario projected water demand assuming continuation of current water demand trends, and the second and third scenarios projected higher and lower estimates based on more or less future use of water resources. The middle (current trends) scenario showed a 44.1% increase in water demand in Lake County from 2005 through 2050. The corresponding low and high estimates showed 13% and 75% increases in water demands. Thus the study indicates a broad range of possible water demands for the 45 year projection.

Figure 3-1
Population Projections
Water and Wastewater Service



Projecting the long range future water demand for the Department is not exact. Wastewater service demand is expected to increase as water demand increases, with similar uncertainty. Further, the projections have not been updated to include the impacts of the recent economic recession, which is depressing economic and population growth rates.

The demand for water and wastewater services is expected to increase over the period from now (2013) through 2050, but the magnitude of the increase is not well defined. The middle range projection suggests a 44% increase in demand, plus a possible increase in the portion of the county that is served by the Department. It is suggested that the demand for county water and sewer service will increase by about 50% by the year 2050. Service expansion capital assets (infrastructure) are typically provided by a combination of developer provided assets (i.e., pipelines, manholes, etc.) and connection fees from the new users.

System Expansion Project Examples

- Water Reclamation Facility expansion to accommodate higher flows
- Water main or sewer extension to a new subdivision
- Pipeline replacement with larger diameter pipe to increase capacity

Section 4
Capital Improvement Program
2013-2018

Section 4
Capital Improvement Program (2013-2018)

The Lake County Public Works Department owns and operates a large set of assets. At any point in time, there are a number of capital projects underway to preserve, expand or modernize the assets. Some focus on planning, others on design or construction. A capital improvement program identifies all of these projects. The projects are scheduled and budgeted so that they can be effectively managed and implemented.

PROJECT PHASES

Every capital project is different; however, there are common elements to all projects. The three broad phases of capital projects are planning, design and construction.

Planning

Project planning activities include recognizing the need for a project, comparing various alternatives to address the needs, and estimating the project costs. Project planning is the least expensive phase of a project, but decisions made during planning will drive construction and operating costs over the life of the project.

Design

Design is the effort to fully describe a project through drawings and specifications. This effort typically involves detailed engineering work to develop the project concepts into documents that are used to obtain bids from construction contractors and then followed by the contractor who constructs the project.

Construction

Project construction is the activity of tradesmen and laborers to build the project in concrete and steel. This is the phase of a project that requires the largest expenditure of capital funds.

Timing

Each of the project phases requires time for the work to be completed. The amount of time varies with the type and size of the project. Most capital projects take several years from the start of planning through the end of construction. The timing of the project phases can be scheduled so that expenditures of capital funds can be planned in advance.

The following paragraphs describe the individual capital projects that are planned through 2018. The tables following these descriptions provide timing and cost estimates for each initiative.

PROJECT DESCRIPTIONS

Project 1: NCT Vernon Hills Water Reclamation Facility (WRF)

Updates to the wastewater treatment system, including improvements to the aeration blowers, upgrading the dissolved oxygen control system, and modifying the treatment plant to achieve enhanced biological nutrient removal.

Goals: Improve treatment reliability, reduce power consumption, and improve effluent quality to meet more stringent IEPA standards

Fiscal Year	Cost
2013	$1,040,000
2014	$820,000
Total	**$1,860,000**

Project 2: Des Plaines River WRF - Phase IIB

Improvements to wastewater treatment processes, including modifying the treatment system to incorporate biological nutrient removal, improvements to the HVAC systems, and the addition of tertiary filtration capacity. The plant's standby power system will be improved with the addition of a 1,500 kW generator.

Goals: Improve treatment plant reliability during power outages, promote energy efficiency, maintain non-process assets, and improve treatment processes to meet more stringent IEPA standards

Fiscal Year	Cost
2014	$8,980,000
Total	**$8,980,000**

Project 3: Des Plaines River WRF, Phase III

Addition of a biosolids drying facility to the plant. The biosolids drying facility will upgrade the sludge byproduct to an EPA Class A Exceptional Quality Biosolids. The restrictions on ultimate use or disposal of a Class A product are minimal compared to the present Class B product. The new facility is being planned to process sludges from all of the LCPWD water reclamation facilities at the Des Plaines River facility.

Goals: Improve biosolids quality, reduce disposal costs, and meet regulatory standards

Fiscal Year	Cost
2013	$1,000,000
2014	$13,000,000
Total	**$14,000,000**

Project 4: Des Plaines River WRF, Phase IV

Refurbishment of the facility's buildings for energy efficiency, and structural integrity, etc. to increase their service lives. Non-process upgrades to the facility will include reroofing and other exterior building repairs, paving, and remodeling the Battery A Control Building.

Goals: Update buildings that are over twenty years old

Fiscal Year	Cost
2014	$2,100,000
Total	**$2,100,000**

Project 5: Southeast Central Interceptor Sewer

Refurbishment of deteriorated sections of the interceptor sewer in Libertyville.

Goal: Restore the integrity of this pipe to extend service life and maintain capacity

Fiscal Year	Cost
2018	$2,665,000
Total	**$2,665,000**

Project 6: Southeast Interceptor Sewer

Refurbishment of deteriorated sections of the interceptor sewer in Long Grove.

Goal: Restore the integrity of this pipe to extend service life and maintain capacity

Fiscal Year	Cost
2018	$4,695,000
Total	**$4,695,000**

Project 7: Maple and Acorn Lift Stations

Improvements to two lift stations include modernization of 35 year old infrastructure and addition of flow diversion piping. Flow will be redirected from the Diamond/Sylvan Lake WRF to the NCT Vernon Hills WRF.

Goals: Modernize and increase the capacities of the lift stations to help minimize sewer backups to local residents

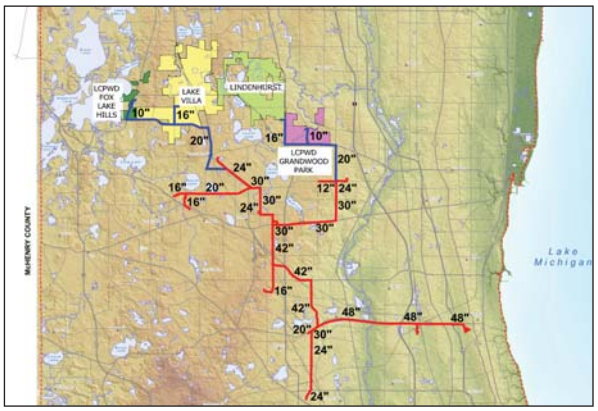
Fiscal Year	Cost
2013	$800,000
Total	**$800,000**

Project 8: Grandwood Park Water System

Formation of a Special Service Area to fund changing the water source for this system from groundwater wells to Lake Michigan water.

Goals: Improved water quality and long-term sustainability

Fiscal Year	Cost
2013	$76,000
Total	**$76,000**



Project 9: Arden Shores Water System

This project includes replacement of the groundwater supply water system with a Lake Michigan water supply connection to the City of North Chicago.

Goals: Improved water quality and long-term sustainability

Fiscal Year	Cost
2013	$370,000
Total	**$370,000**

Project 10: LCPWD Administration Building

Remodeling and improvements to the LCPWD Administration Building.

Goals: Expand conference facility, staff training area, and record storage capacity

Fiscal Year	Cost
2018	$1,270,000
Total	**$1,270,000**

Project 11: East Main Pump Station

Originally constructed in the 1980, the current project includes control valve upgrades and electrical power system upgrades. In addition, the existing automatic screens will be replaced with grinders.

Goals: Improve station reliability and eliminate a solid waste handling operation at this facility

Fiscal Year	Cost
2014	$750,000
Total	**$750,000**

Project 12: Southeast Sewer System Infiltration and Inflow Assessment

Lake Zurich, Buffalo Grove, Lincolnshire, Riverwoods, Bannockburn, Kildeer and Long Grove all discharge their wastewater to the Des Plaines River WRF. All of these sewers show evidence of significant infiltration and inflow. This study is assessing the extent of the problem by installing 16 flow meters and monitoring flow characteristics under normal conditions and under wet, rainy conditions.

Fiscal Year	Cost
2013	$300,000
Total	**$300,000**

Goals: Use the flow data to quantify the extent of the inflow and infiltration entering this sewer system from neighboring community sewers

Project 13: Water Tower Refurbishment

The water towers for Vernon Hills (Hawthorn Tower), Wildwood and Brooks Farm will be painted and refurbished to meet current OSHA standards.

Goals: Improve the appearance of the towers and extend their service lives, as well as meet current safety standards

Fiscal Year	Cost
2016	$230,000
2017	$230,000
2018	$230,000
Total	**$690,000**

Project 14: NEC Interceptor Sewer

As a result of expansion within Grayslake, additional capacity will be required within the NEC system. Capacity will be increased by installing relief sewers.

Goal: Increase capacity of the interceptor sewer to accommodate additional customers

Fiscal Year	Cost
2017	$150,000
2018	$1,800,000
Total	**$1,950,000**

Project 15: Northwest Excess Flow Facility

Improvements will be made to the existing lagoon to increase storage volume. Additional improvements will include piping changes and a new swirl concentrator to remove large solids from the water.

Fiscal Year	Cost
2013	$7,300,000
Total	**$7,300,000**

Goals: Increased wet weather storage capacity during rain events and improved operations in all weather conditions

Project 16: Supervisory Control and Data Acquisition (SCADA) system

Improvements to this electronic linkage among the LCPWD facilities will employ state-of-the-art equipment and will include converting from telephone line data transmission to wireless (radio) data transmission. The system includes data transmission from over 150 sites and includes both water and wastewater facilities.

Goals: Reduce operating costs, improve data collection, and improve the flow of information and failure alarms to a central location

Fiscal Year	Cost
2013	$505,000
2014	$1,000,000
2015	$630,000
Total	**$2,135,000**

Project 17: Water Tower Refurbishment

The water tower for the Countryside Lake system will be painted and refurbished to meet current OSHA standards

Goals: Improve the appearance of the tower and extend its life while updating to meet current safety standards

Fiscal Year	Cost
2014	$160,000
Total	**$160,000**

Project 18: Water Tower Replacement

The water tower for Countryside Manor will be removed and replaced since it has reached the end of its service life. The capacity will be increased from 40,000 gallons to 150,000 gallons to provide additional system storage and fire flow.

Goals: Meet current standards, emergency storage, and provide adequate fire protection

Fiscal Year	Cost
2014	$450,000
Total	**$450,000**

Project 19: Pekara Water System

The existing groundwater well supply will be replaced with Lake Michigan water.

Goals: Improved water quality and long-term sustainability

Fiscal Year	Cost
2013	$35,000
2014	$50,000
2015	$530,000
Total	**$615,000**

Project 20: Washington Street Sewer Realignment

Due to the widening of Washington Street, a lift station and sections of sewer must be relocated.

Goals: Accomodate highway reconstruction

Fiscal Year	Cost
2013	$50,000
2014	$100,000
Total	**$150,000**

Project 21: Route 120 Reservoir Expansion

Design and construction of improvements to the Route 120 water reservoir.

Goals: Increase system capacity to provide uninterrupted service to customers during system repairs and miscellaneous shutdowns for maintenance

Fiscal Year	Cost
2014	$80,000
2015	$1,050,000
Total	**$1,130,000**

Project 22: Grandwood Park/Bridlewood Reservoir and Booster Station

Design and construct improvements to the Bridlewood Reservoir in Grandwood Park to distribute Lake Michigan water to area residents.

Goals: Improve water quailty and long-term sustainability

Fiscal Year	Cost
2015	$40,000
2016	$420,000
Total	**$460,000**

Project 23: Fox Lake Hills Water System

Formation of a Special Service Area to fund changing the water source for this system from groundwater wells to Lake Michigan water.

Goals: Improve water quailty and long-term sustainability

Fiscal Year	Cost
2013	$28,000
Total	**$28,000**

Project 24: Fox Lake Hills Reservoir and Booster Station

Design and construction of a reservoir and booster pump system to distribute Lake Michigan to area residents.

Goals: Improved water quality and long-term sustainability, as well as increase pressure and improve ability to meet fire flow demands

Fiscal Year	Cost
2015	$40,000
2016	$525,000
Total	**$565,000**

Project 25: Oak Terrace

Design and construct improvements to the West Oak well and the Oak Terrace water system.

Goal: Replace aging system components to extend service life and improve reliability of service to customers

Fiscal Year	Cost
2014	$25,000
2015	$315,000
Total	**$340,000**

Project 26: East Main Force Main Extension

Design and construct improvements and extension of the East Main Force Main.

Goal: Improve capacity, eliminate overloaded section of 42-inch interceptor, and allow for rehabilitation of interceptor to extend service life

Fiscal Year	Cost
2015	$140,000
2016	$1,860,000
Total	**$2,000,000**

Project 27: Corporate Woods Reservoir

Expansion of the Corporate Woods Reservoir in Vernon Hills by 500,000 gallons.

Goal: Increase system capacity to provide uninterrupted service to customers during system repairs and miscellaneous shutdowns for maintenance

Fiscal Year	Cost
2016	$70,000
2017	$1,050,000
Total	**$1,120,000**

Project 28: Gregg's Landing Reservoir

Expansion of the Gregg's Landing reservoir in Vernon Hills by 750,000 gallons.

Goal: Increase system capacity to provide uninterrupted service to customers during system repairs and miscellaneous shutdowns for maintenance

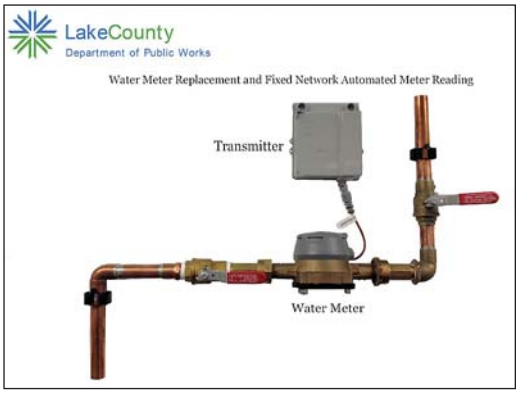
Fiscal Year	Cost
2016	$120,000
2017	$1,550,000
Total	**$1,670,000**

Project 29: Water Meter Replacements

Replace existing water meters and implement fixed network automated water infrastructure.

Goals: Modernize metering process to a wireless transmission system to collect more metering data and improve accuracy. Improve the ability to detect leaks and provide enhanced usage data to customers.

Fiscal Year	Cost
2013	$3,100,000
2014	$3,700,000
Total	**$6,800,000**



Project 30: Water Main Replacements

Continuation of an annual program to replace aging water mains, because old water mains are typically subject to more frequent breaks and other issues that can interrupt service to customers.

Goals: Improve reliability of the water system and extend service life of infrastructure

Fiscal Year	Cost
Annual program	$1,100,000 per year

Project 31: Sewer Rehabilitation

Continue an annual program to rehabilitate older sewers.

Goals: Improve flow characteristics, restore pipe strength, prevent rain water from entering and overloading the sewer system, and extend the service life of existing sewers

Fiscal Year	Cost
Annual program	$330,000 per year

Project 32: Consultant Services

Annual cost for outside consultants to evaluate potential improvements for the LCPWD.

Goals: Provide study, design, and construction related services to produce the most cost-effective projects in the shortest possible timeframes

Fiscal Year	Cost
Annual program	$300,000 per year

2013
CAPITAL IMPROVEMENT PLAN

Project No.	Facility	Project Description	Phase	Preservation	Modernization and Compliance	Expansion
1 2012.019	NCT-Vernon Hills WRF	Blower improvements, dissolved oxygen control, biological nutrient removal	C		$1,040,000	
3	Des Plaines River WRF - Phase 3	Biosolids drying facility	D	$200,000	$800,000	
7 2010.017 2010.048	Diamond/Sylvan Lake	Diversion at Maple and Acorn Lift Stations	C	$400,000		$400,000
8 2011.001	Grandwood Park	SSA for conversion to Lake Michigan water	P		$76,000	
9 2011.065	Arden Shores Estates	Water system supply replacement	D,C		$370,000	
12 2012.013	Wholesale and Retail Sewer	Infiltration and inflow assessment	P	$300,000		
15 2012.054	NW-Wholesale Sewer	Lagoon storage volume improvements	C		$3,650,000	$3,650,000
16 2012.034	All Retail Sewers	Supervisory Control and Data Acquisition (SCADA) program	C		$505,000	
19 2013.032	Pekara Water System	Lake Michigan water connection	P		$35,000	
20 2011.027	Washington Street Sewer	Sewer realignment	D		$50,000	
23 2011.001	Fox Lake Hills	SSA for conversion to Lake Michigan water	P		$28,000	
29 2013.041	All Retail Water	Water meter replacement project	C		$3,100,000	
30	All Retail Water	Watermain replacement projects	D,C	$1,100,000		
31	All Wholesale and Retail Sewer	Sewer rehabilitation	P,D,C	$330,000		
32	Administration	Consultant services	P		$300,000	
Subtotal				$2,330,000	$9,954,000	$4,050,000
Total						$16,334,000

Phases
P = Planning
D = Design
C = Construction

2014
CAPITAL IMPROVEMENT PLAN

Project No.	Facility	Project Description	Phase	Preservation	Modernization and Compliance	Expansion
1 2012.019	NCT-Vernon Hills WRF	Blower improvements, dissolved oxygen control, biological nutrient removal	C		$820,000	
2 2001.53	Des Plaines River WRF - Phase 2B	Biological nutrient removal, additional filtration capacity	D,C		$8,980,000	
3	Des Plaines River WRF - Phase 3	Biosolids drying facility	C	$2,600,000	$10,400,000	
4	Des Plaines River WRF - Phase 4	Refurbish buildings	D,C	$2,100,000		
11 2010.042	East Main Pump Station	Electrical and valve refurbishment, new grinder	C	$750,000		
16	All Retail Sewers	SCADA program	D,C		$1,000,000	
17	Countryside Lake	Water tower refurbishment	D,C	$160,000		
18	Countryside Manor	Water tower replacement	D,C	$450,000		
19 2013.032	Pekara Water System	Lake Michigan water connection	D		$50,000	
20 2011.027	Washington Street Sewer	Sewer realignment	C		$100,000	
21 2012.032	Route 120 Reservoir	Reservoir expansion	C		$80,000	
25	Oak Terrace	Water system improvements	D	$25,000		
29 2013.041	All Retail Water	Water meter replacement	C		$3,700,000	
30	All Retail Water	Watermain replacement	P,D,C	$1,100,000		
31	All Wholesale and Retail Sewer	Sewer rehabilitation	P,D,C	$330,000		
32	Administration	Consultant services	P		$300,000	
Subtotal				$7,515,000	$25,430,000	
Total						$32,945,000

Phases
P = Planning
D = Design
C = Construction

2015
CAPITAL IMPROVEMENT PLAN

Project No.	Facility	Project Description	Phase	Preservation	Modernization and Compliance	Expansion
16	All Retail Sewers	SCADA program	C		$630,000	
19 2013.032	Pekara Water System	Lake Michigan water connection	C		$530,000	
21 2012.032	Route 120 Reservoir	Reservoir expansion	C		$1,050,000	
22	Grandwood Park/ Bridlewood Reservoir	Reservoir modifications for Lake Michigan water	D		$40,000	
24	Fox Lake Hills	Reservoir and booster station	D		$40,000	
25	Oak Terrace	Water System improvements	C	$315,000		
26	East Main Force Main	Force main extension	D	$28,000	$112,000	
30	All Retail Water	Watermain replacement projects	P,D,C	$1,100,000		
31	All Wholesale and Retail Sewer	Sewer rehabilitation	P,D,C	$330,000		
32	Administration	Consultant services	P		$300,000	
Subtotal				$1,773,000	$2,702,000	
Total						$4,475,000

Phases
P = Planning
D = Design
C = Construction

2016
CAPITAL IMPROVEMENT PLAN

Project No.	Facility	Project Description	Phase	Preservation	Modernization and Compliance	Expansion
13	Retail Water	Water tower refurbishment– Vernon Hills, Wildwood, Brooks Farm	D,C	$230,000		
22	Grandwood Park/ Bridlewood Reservoir	Reservoir modifications for Lake Michigan water	C		$420,000	
24	Fox Lake Hills	Reservoir and booster station	C		$525,000	
26	East Main Force Main	Force main extension	C	$372,000	$1,488,000	
27	Corporate Woods	500,000 gallon reservoir	D		$70,000	
28	Gregg's Landing	750,000 gallon reservoir	D		$120,000	
30	All Retail Water	Watermain replacement projects	P,D,C	$1,100,000		
31	All Wholesale and Retail Sewer	Sewer rehabilitation	P,D,C	$330,000		
32	Administration	Consultant services	P		$300,000	
Subtotal				$2,032,000	$2,923,000	
Total						$4,955,000

Phases
P = Planning
D = Design
C = Construction

2017
CAPITAL IMPROVEMENT PLAN

Project No.	Facility	Project Description	Phase	Preservation	Modernization and Compliance	Expansion
13	Retail Water	Water tower refurbishment– Vernon Hills, Wildwood, Brooks Farm	D,C	$230,000		
14 2008.070	Wholesale Sewer	Installation of relief services	D			$150,000
27	Corporate Woods	500,000 gallon reservoir addition	C		$1,050,000	
28	Gregg's Landing	750,000 gallon reservoir addition	C		$1,550,000	
30	All Retail Water	Watermain replacement projects	P,D,C	$1,100,000		
31	All Wholesale and Retail Sewer	Sewer rehabilitation	P,D,C	$330,000		
32	Administration	Consultant services	P		$300,000	
Subtotal				$1,660,000	$2,900,000	$150,000
Total						$4,710,000

Phases
P = Planning
D = Design
C = Construction

2018
CAPITAL IMPROVEMENT PLAN

Project No.	Facility	Project Description	Phase	Preservation	Modernization and Compliance	Expansion
5 2004.43	Wholesale Sewers	Southeast Central Interceptor Sewer refurbishment	D,C	$2,665,000		
6 2010.17	Retail Sewers	Southeast Interceptor Sewer refurbishment	D,C	$4,695,000		
10 2004.015	Administration	Administration building	D,C		$1,270,000	
13	Retail Water	Water tower refurbishment– Vernon Hills, Wildwood, Brooks Farm	D,C	$230,000		
14 2008.070	Wholesale Sewer	Installation of relief services	C			$1,800,000
30	All Retail Water	Watermain replacement projects	P,D,C	$1,100,000		
31	All Wholesale and Retail Sewer	Sewer rehabilitation	P,D,C	$330,000		
32	Administration	Consultant services	P		$300,000	
Subtotal				$9,020,000	$1,570,000	$1,800,000
Total						$12,390,000

Phases
P = Planning
D = Design
C = Construction

Section 5
Funding

Section 5
Funding

The Lake County Public Works Department's budget is an enterprise fund. As such, it is entirely supported by funds generated within the department, with no County General Fund Tax support. This includes water and sewer connection fees, meter fees, inspection fees, water and sewer utility bills, etc. The Department's capital projects are funded by departmental income.

FUNDING REQUIREMENTS

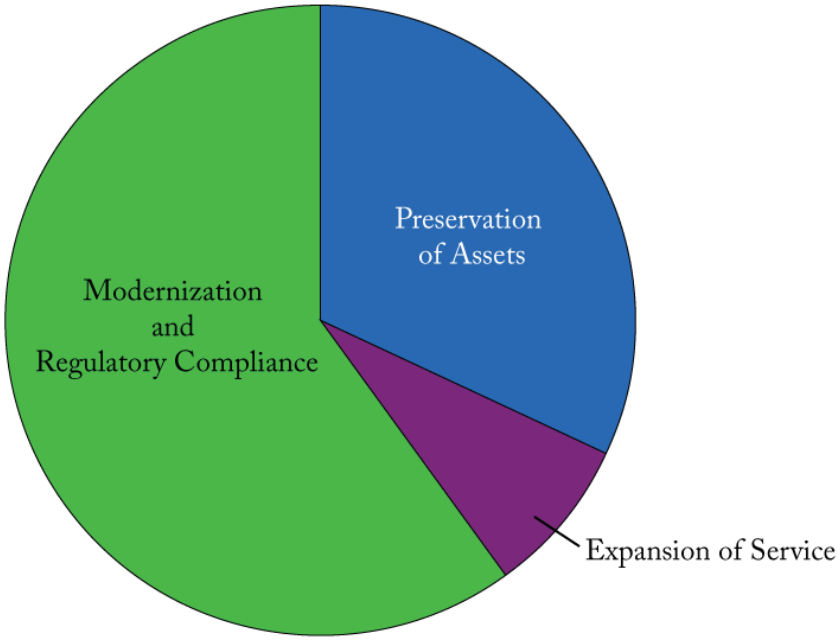
The Capital Improvements Plan for the years 2013 through 2018 is presented in the previous section. The annual funding requirements for these improvements are summarized in Table 5-1 below. These requirements include a breakdown among the three major priorities: system preservation, system modernization and compliance, and system expansion. The funding breakdown by priorities is illustrated in Figure 5-1. The total funding requirement for the period is $75,809,000, which is an average of $12,634,833 per year.

Table 5-1
Funding Requirements

Year	Preservation	Modernization and Compliance	Expansion	Total
2013	$2,330,000	$9,954,000	$4,050,000	**$16,334,000**
2014	$7,515,000	$25,430,000	$0	**$32,945,000**
2015	$1,773,000	$2,702,000	$0	**$4,475,000**
2016	$2,032,000	$2,923,000	$0	**$4,955,000**
2017	$1,660,000	$2,900,000	$150,000	**$4,710,000**
2018	$9,020,000	$1,570,000	$1,800,000	**$12,390,000**
Total	**$24,330,000**	**$45,479,000**	**$6,000,000**	**$75,809,000**

As shown in the following figure, most of the funding requirements are allotted to system modernization and compliance, followed by system preservation, and finally, applied toward system expansion.

Figure 5-1
Funding Requirements



FUNDING SOURCES

The Department uses three major funding sources for capital improvements: User Fees, Reserve Funds, Bond Proceeds, and Connection Fees. The anticipated use of these fund sources for the Capital Improvements Plan from 2013 through 2018 is shown in Table 5-2 and illustrated in Figure 5-2.

Table 5-2
Funding Sources

Source	Preservation	Modernization and Compliance	Expansion	Total
User fees	$16,750,000	$17,369,000		$34,119,000
Reserve funds	$7,580,000	$7,580,000		$15,160,000
Bond proceeds		$20,530,000		$20,530,000
Connection Fees			$6,000,000	$6,000,000
Total	**$24,330,000**	**$45,479,000**	**$6,000,000**	**$75,809,000**

Figure 5-2 below illustrates that 45% of the funds are derived from user fees, 27% from bond proceeds, 20% from reserve funds, and 8% from connection fees.

Figure 5-2
Funding Sources