Village of Villa Park
Capacity, Management, Operation, and Maintenance (CMOM) Plan

March 31, 2016

Table of Contents:

1. COLLECTION SYSTEM MANAGEMENT

a. Goals

Village of Villa Park's preventive maintenance plan (PMP) covers the assets we manage in our wastewater collection system and is one component of our overall Capacity, Management, Operations and Maintenance (CMOM) Plan. The PMP combines preventive, predictive and corrective maintenance strategies with our best management practices. The CMOM Plan and PMP have been prepared to help Village of Villa Park effectively manage our wastewater collection system and achieve the following goals:

Goals

- Prevent public health hazards
- Protect the environment
- Comply with regulations
- Minimize the frequency of SSOs
- Mitigate the impact of SSOs
- Minimize disruptions in service
- Minimize complaints
- Provide quick response to any disruption in service that occurs
- Protect Village of Villa Park's large investment in the sewer collection system by maintaining maximum capacity and extending the useful life of the associated assets
- Prevent unnecessary damage to public/private property
- Efficiently use the funds available for the maintenance of the infrastructure and the operation of services
- Reduce expenditures for emergency maintenance
- Convey wastewater to the Salt Creek Sanitary District waste water treatment facility with a minimum of infiltration, inflow and exfiltration
- Provide adequate capacity to convey peak flow
- Provide immediate, responsive, and efficient service to all emergency calls
- Provide a safe work environment for employees, employers, and residents in the Village of Villa Park
- Perform all operations in a safe manner to prevent personal injury
- Utilize evolving technology to increase our effectiveness and efficiency
- Provide reliable service now and into the future

b. Organization

The Village of Villa Park's Utilities Division is under the Department of Public Works and is responsible for operation and maintenance of the wastewater collection system and the wet weather treatment facility. The division is also responsible for the water system. The Salt Creek Sanitary District owns and operates the wastewater treatment plant. The Utilities Division has a staff of 8 full time and 2 seasonal operation and maintenance positions. Contractors are used for some maintenance activities and for emergency support.

The Utilities Division is fully staffed and operates under the following organizational structure:

Public Works Director – Establishes policy, plans strategy, leads staff and delegates responsibility, allocates resources, authorizes outside contractors to perform services, and coordinates with public information officer. The Public Works Director is also the Village Engineer.

Deputy Director – Plans, organizes, assigns, directs and reviews the work of the Public Works water production and distribution, sewage collection, street maintenance, forestry operations, traffic control and the maintenance and repair of Village utilities including street lights and traffic signals. Manages all public works operations and proposes and carries out annual programs for public infrastructure maintenance.

Utilities Foreman –Manages field operations and maintenance activities, provides relevant information to agency management, prepares and implements contingency plans, leads emergency response, investigates and reports SSOs, and trains field crews.

Assistant Village Engineer – Ensure that new and rehabilitated assets meet village standards, works with field crews to handle emergencies when contractors are involved, and provides reports to the Public Works Director, the Deputy Director and the Utilities Foreman.

Field Crew – Conduct staff operations, provide weather related emergency response and preventive maintenance activities, mobilize and respond to notification of stoppages and SSOs (e.g., mobilize sewer cleaning equipment, by-pass pumping equipment, and portable generators). Operate the Wet Weather Flow Treatment Facility. The Utilities has 8 staff on our field crew and 2 seasonal employees which also maintains the Village's Water System.

Administrative/Public Relations – Support staff operations and preventive maintenance activities, assist with data entry, permit processing, dispatch, payroll, customer response, outreach, education, and other support functions as needed. The Public Works Department coordinates with the Village Hall regarding payroll and bill handling.

Relation to Other Municipal Functions

The Utilities Division is not a separate utility, but rather an integrated Division within the Village of Villa Park's Public Works Department. It is responsible for management, operations and maintenance of the wastewater collection, the wet weather treatment facility, and the water system, including permitting and inspections of activities by private entities. Many activities of the Village of Villa Park's sewer collection system are supported by the following departments and organizations:

- Collection system mapping is supported by the Engineering Division. This division also provides support, policy recommendations, and advice concerning Village of Villa Park's future growth and development, and is responsible for maintaining and updating the Utilities Division GIS existing sewer infrastructure mapping system.
- Resources and budget are overseen by the Finance Department.
- Contingency equipment and replacement inventories are funded by the Wastewater Fund.
- Training for safety and operations is provided through the Illinois Risk Management Association (IRMA), the Illinois Technology Transfer Center, and other organizations.
- Outreach to plumbers and building contractors is performed by the Public Works Department.

- Design and Construction Standards for installation, rehabilitation and repair are overseen and reviewed by the Engineering Division in accordance with the Standard Specifications for Water and Sewer Construction in Illinois.
- Standards for inspection and testing used are from the Standard Specifications for Water and Sewer Construction in Illinois.
- Inspection of grease interceptors/separators is performed by the Village's Plumbing Inspector or Utilities Division staff.
- Outreach for Fats, Oils and Grease is performed jointly by the Utilities Division personnel and/or the Salt Creek Sanitary District.
- Personnel hiring and administration are performed by Public Works Department and the Finance Department.
- Procurement of non-routine equipment, services or supplies is authorized by the Village Manager for purchases exceeding $5,000.00 up to $20,000.00.
- Legal Counsel provides legal services and advisory opinions to the Utilities Division on departmental issues, contracts and agreements, and is responsible for handling all claims against the Utilities Division and prosecuting violations of all Sewer Use Ordinances.
- The Streets and Forestry Division assists with weather related emergency responses and provides paving services to Utilities Division on all sewer repairs performed within public streets and works to coordinate street-paving schedules with sewer work.
- The Village of Villa Park's Village Manager's Office maintains copies of Resolutions and Village Ordinances passed by the Village of Villa Park's Village Board related to the operation of the Utilities Division.

c. Training

The Village of Villa Park's training program provides a mechanism for educating employees and establishing their technical competence through consultants, manufacturers, consultants, government agencies and industry. The Village of Villa Park utilizes a combination of in-house skill training and specialized training through state and national associations. Skills training for the Utilities Division employees includes, but is not limited to:

- Routine Line Maintenance
- Heavy Equipment Operation
- Maintenance Equipment Operation
- Infrastructure Installation
- Pump Station Operation and Maintenance
- Electrical and Instrumentation
- Emergency Response
- Public Relations
- Safety
- CCTV Equipment

Safety training is obtained from the State, IRMA, and other training agencies. The Village of Villa Park expects employee adherence to the following written safety policies and procedures.

- Confined Space Entry
- Hard Hat Policy

- Vehicle Operation Policy
- Seat Belt Policy
- Respiratory Protection Program
- Excavation Safety Policy and Program
- Chlorine Safety Policy
- Injury Reporting Policy
- Post Accident Drug Testing Policy
- Personal Protective Equipment (provided for the employee)
- First Aid, CPR and AED (First aid supplies are available in office areas and vehicles)
- Flaggers
- Hazard Communication Program
- Defensive Driving Program (employees who are required to maintain a commercial driver's license must complete a four (4) hour defensive driving course)
- OSHA training

The Utilities Division maintains appropriate PPE safety equipment including: protective clothing, safety glasses, hard hats, gloves, respirators, filters, harnesses, tripods, hoists, fire extinguishers and self-contained breathing apparatus. Lights, barricades, signage and exhaust fans are also available on the vehicles as well as at the Public Works Facility.

d. Customer Service

1. Service Request Management Program

Service requests are received by various means (e.g., phone calls, e-mail, other Village of Villa Park departments, and occasionally in person). Regardless of the nature or means of receipt, all service requests are entered via the dispatcher into our service request system. Entries include the following detailed information about the complaint/request:

- Receiver of complaint / dispatcher
- Time and date of request
- Form number (Work Order)
- Complainant information (Name, address, call back phone number)
- Location of the problem
- Type of complaint (Codes, e.g. home back up, odor, manhole overflow, etc.)
- Specific request
- Personnel assigned to complaint
- Findings type, including cause of problem
- Complaint closeout information
- Date complaint closed

Once a service request is assigned, our field personnel perform an investigation, if appropriate. The Public Works Department will generate a work order to take appropriate action for permanent correction of the problem. If the Village of Villa Park is not responsible for correcting the problem, the Utilities Division will provide the complainant with guidance on a recommended course of action. Once an investigation has been completed, the staff enters closeout information into the service request system. **Attachment 1** depicts a typical form from the dispatch.

Attachment 1

VILLA PARK PUBLIC WORKS

Work Order #: 008962-065

To: PUBWORK
Assigned By: - Unknown employee:
Name: G
Business: Generic Record
Address: Home
CSZ: Villa Park,
Problem: 011401 - Misc Administration
Location: Generic Record

PIN #:
Water Acct #:
Date/Time: 12/03/2015 11:31 AM
Taken By: debbie
(H) Phone:
(W) Phone:
(C) Phone:
(P) Phone:

Details: Sample

Initial Action: _____
Description of Action Taken: _____
_____
_____
_____

Date/Time Performed: _____ **Inspector:** _____
Is Additional Action Scheduled? ( ) Yes ==> **When:** _____
( ) No **What Action:** _____
_____
_____
_____

Citizen Advised? ( ) Yes ( ) No

Description of COMPLETED Action Taken: _____
_____
_____
_____

Date/Time Completed: / / : : AM
Report Done By:
Superintendent's Signature: _____
Comments:

1

2. Public Information and Education Program

The Village of Villa Park uses a variety of outlets for providing information and education to customers. The outlet(s) used to disseminate information is often based on the type of information and the targeted audience. The Village of Villa Park routinely uses the outlets listed below to help the Village provide its citizens with the most up-to-date information possible:

- Public Information Officer
- Cable TV Channel
- Village Website
- Social Media
- Local Media (TV and Newspaper)
- Neighborhood / Town Hall Meetings
- Village of Villa Park Village Board Agenda
- Public Hearings
- Personal Visits / Phone Calls
- Door Hangers
- Sign Postings
- Customer Mailings
- FOIA

The Village of Villa Park has maintained good community relations regarding issues with the operation and maintenance of our collection system. Types of information and education provided to our customers are as follows:

Information and Education Programs

Sewer System Evaluation Survey Work	Sewer Use Ordinances
Major Repairs and Rehabilitation	New Construction
Road Closures	Point Repairs for Street Paving
Customer Emergency Response	Sewer Use Rates
Grease Handling Information	Complaint Procedures
Service Connection Requirements	Private Hauler Instructions
Wastewater Collection and Treatment	

e. Information Management and Asset Management Systems

The Village of Villa Park uses Geographic Information System and an Asset Management System (Cartegraph) to manage information on our collection system. Table 1 shows the information that is included in our GIS of the collection system.

Table 1: **Collection System Map Information included in the Village of Villa Park's GIS**

Manholes Basic Map Information - ID number or other unique identifier - Location, with reference to streets and property lines - Depth - GPS coordinates - Size	**Manholes Additional Map Information** - Date built - Rim elevation - Invert elevation - Material Type
Pipes and Siphon Basic Map Information - ID number or other unique identifier - Location, with reference to streets, surface waters, property lines and manholes - Size - Direction of flow - Length - Material type - Date built	**Pipes Additional Map Information** - Pipe invert elevations - Plan or as-built ID number - Rehabilitation status / year of rehabilitation - Service laterals – Under Development
Pump Stations Basic Map Information - ID number - Location	**Pump Stations Additional Map Information** - Additional information are located on drawings at the Public Works Facility
Force Main Basic Map Information - ID number or other unique identifier - Location, with reference to streets, surface waters, and property lines - Direction of flow and pump station associated - Length - Material type - Date built	**Force Main Additional Map Information** - Slope - Invert elevations - Plan or as-built ID number

Activities performed by department personnel is generated and tracked through the service request system and weekly reports.

f. Legal Authorities and Controls

1. Sewer Use Ordinance

The Village of Villa Park has established and implemented regulations regarding the use of the wastewater collection system. The Village of Village of Villa Park has a comprehensive sewer use ordinance, consistent with the EPA's model ordinance. As regulations and requirements have changed, the Village of Villa Park has passed additional ordinances to address those issues. Ordinances are kept up-to-date and are available electronically at www.invillapark.com.

2. Joint Sewer System Agreement

The Village of Villa Park has had an agreement with the Salt Creek Sanitary District for treatment of the Village of Villa Park's wastewater since September 23, 1932.

2. GENERAL INFORMATION ABOUT THE VILLAGE OF VILLA PARK'S SANITARY SEWER SYSTEM

a. Wastewater Treatment and Collection System Description

The Village of Villa Park's wastewater collection system is divided into six areas. Four of these areas, which comprise approximately 35% of the sewer system, are served by combined sewers. During normal, dry weather flow, wastewater from all six areas flows to the Salt Creek Sanitary District (SCSD) located at 201 S. Route 83 Villa Park, IL 60181. During high flow situations the excess flow is diverted to the Wet Weather Flow Treatment Facility (WWFTF) for primary treatment.

The WWFTF was built in 1988 and was designed to provide primary treatment for flows up to 25 MGD. The WWFTF is operated and maintained by the Village of Villa Park.

The Village of Village of Villa Park does not own or maintain any portion of the sewer laterals that drain each privately owned parcel or property beyond the sewer main. However, we do work with homeowners to prevent backups into their homes and provide assistance with repairs to sewer laterals.

The Village of Villa Park's staff and contractors perform planned maintenance tasks at scheduled frequencies. These are established based on experience and collection system information to minimize the risk of blockages or equipment failures that could lead to sewer overflows. Some portions of the wastewater collection system are maintained more often than others based upon past history and their importance to the effective operation of the wastewater collection system. Staff and/or contractors also perform unplanned maintenance and repairs.

b. Collection System Details

- Service Area: 4.78 Square miles
- Population Served in primary community: 22,038
- System Inventory owned by the Village of Villa Park:

Miles of gravity sewer	Miles of force main	Number of manholes	Number of pump stations		Number of siphons	Number of air relief valves
			Public	Private		
75.17	.41	1,675	7	0	4	0

- Lift Stations:

The Village is served by a total of seven lift stations, two of which are particularly critical. The largest lift station is the South Villa Lift Station, which serves all of Basins 6, 7, and 8. (See Exhibit 1.) It is currently permitted for 6,200 PE with an anticipated additional contribution of 3,800 PE. Currently the average daily flow being delivered to the pump station is 450,000 gpd (370,000 gpd of dry weather flow, PE of 3,700) and 80,000 gpd (600 gpd/idm) of base infiltration. The North Villa Lift Station is the largest station in the north separated area. It serves the part of the Village that is north of North Avenue and delivers approximately 100,000 gpd of dry weather flow and has

a peak capacity of approximately 1.9 mgd. The lift station was rebuilt in 2008.

Area	Station Name	Location	# of Pumps	Rated Capacity (gpm)
South	Westlands	Monterey and Riordan	2	160
South	Route 83	Rt. 83 and Park Blvd.	2	275
South	South Villa	Villa Ave. and Julia	3	3,100
North	North Villa	Villa Ave. and North Ave.	2	1,300
North	Yale and Ridge	Yale Ave., north of Ridge	3	300
North	North Ave. Townhomes	Kramer and North Ave.	2	250
North	North Yale	Yale and Wildfire	2	300

- Number of Service Connections:

  Residential: 6583 Commercial: 540 Industrial: 106 Total: 7,229

- Wet Weather Treatment Facility (WWTF) Flow Characteristics in MGD

Annual Average Daily System Flow	Average Daily Dry Weather Flow	Peak Wet Weather Flow	Treatment Plant Design Capacity (MGD)	
			Average:	Maximum Flow:
.332 mgd	0	25.85 mgd	N/A	25.85 mgd

c. Age Distribution of Collection System

The Village of Villa Park conducts an ongoing program to assess the structural condition and maintenance needs of the collection system as a part of our Cleaning, Inspection and Assessment program. The Village of Villa Park has categorized our sewer system by age:

The ages of the components of our wastewater collection system are as follows:

Age	Gravity Sewer miles	Force Main miles	Number of pump stations
0-25 years	6.75	0.20	7
26-50 years	17.96	0.07	0
51-75 years	16.29	0.21	0
> 76 years	34.17	0.00	0

d. Sanitary Sewer Overflow History

The Village of Villa Park has experienced 12 sanitary sewer overflows (SSOs) events since 2013. Appendix A describes the overflow dates, locations, quantities and causes.

To ensure sewer capacity, the Village of Villa Park has rehabilitated the system and reduced inflow and infiltration (I/I) through a sewer lining program, a robust sewer use ordinance that includes a close-of-sale provision for I/I compliance, FOG (fats, oils, and grease) abatement efforts, and an aggressive overflow response protocol.

e. System Map

The Village of Villa Park wastewater collection system is divided into three main areas. The central part of the Village bounded by Madison Street to the south and the Union Pacific railroad to the north is the combined sewer area. The areas to the north (Basins 1, 2, 3, and 4, collectively referred to as the North Villa area) and south (Basins 5, 6, 7, 8, and 9, collectively referred to as the South Villa area) of this central region are served by separated sanitary and storm sewer systems. It is these nine separated basins in the North and South Villa areas to which this document pertains.

A map of the system is shown in Appendix B. The map is updated by field crew verification and record drawings.

3. CLEANING, INSPECTION AND ASSESSMENT PROGRAM

a. Cleaning

Selective parkway sewers are root cut to eliminate heavy root infiltration. Once a week areas that have a history of sewer back-ups in the past are cleaned and or inspected. The sewer flushing program is one effort to reduce solids deposition in the combined sewer system. The sewer cleaning records are maintained by the Utilities Division on daily work logs.

All cleaning records are kept in Asset Management database that tracks the following:

- date and location of cleaning activity;
- specific lines cleaned;
- presence of root, grease, or debris; and
- problems identified or other necessary follow-up actions.

Each line segment cleaned is identified by an upstream and downstream manhole number. A log is submitted for each day of work completed.

b. Pipe and Manhole Inspection

Televising and Manhole Inspections are performed in conjunction with major engineering projects or on an as-needed basis. Sewer Televising for engineering projects provides information for future sewer rehabilitation projects to be included in the Capital Improvement Program. The televising discs are reviewed by the Engineering and the Utilities Divisions or by consultants. All written data and discs are maintained by the Utilities Division.

The Village of Villa Park uses camera equipment to document:

- the structural condition of the pipe
- root intrusion
- grease
- protruding taps
- evidence of inflow and infiltration (I/I) or surcharging
- manhole pave-overs, and
- other deficiencies that factor into condition assessment

In the event of a blockage, a video inspection assesses the cause of the blockage. After the blockage

is removed, the line is re-evaluated with the camera equipment to ensure that the blockage has been removed.

All newly constructed sewer lines are required to be televised by the contractor or developer to verify as-built conditions and ensure the line has no construction defects.

Manhole inspections help keep our asset inventory up to date and are used not only to update collection system maps, but to determine their structural condition. During manhole inspections, field crews take a complete inventory of each manhole including construction materials, ring size, depth to invert, flow conditions and evidence of problems.

Field Crews are responsible for completing structural repairs to manholes. Repairs include invert work, frame and cover grade adjustment, and frame and cover replacement. More comprehensive repairs, such as complete relining of the manhole structure, are performed by contractors.

c. Assessment

While routine cleaning and visual inspection are used to assess the condition of manholes and surface facilities, televising is the primary method used to assess the condition of the sewer pipes.

Road improvement schedules, storm event information, and results from routine inspection and monitoring are used to prioritize areas needing televising to assess pipe condition such as manholes with evidence of slow flow or surcharging. The assessment is logged into Granite XP Pipeline Inspection and Integration Software using conventional defect criteria.

Pipe condition information is used to determine short and long term maintenance strategies including increased cleaning, root treatment, sewer line repair, re-lining, or replacement. The condition assessment helps establish the cleaning frequency and inform the Village of Villa Park's capital planning. As more condition assessment information becomes available, the priority of capital projects may change. Sewer line repair, re-lining, or replacement projects are also coordinated with re-paving schedules.

Condition assessments document the following details and deficiencies:

Characteristics including pipe diameter, and age and type of material

1. Dips in line
2. Grease build-up
3. Root intrusion
4. Structural condition, including cracks, breaks, fractures, corrosion, and erosion
5. Joint alignment and movement
6. Obstructions
7. Deformations in line

d. Staffing and Equipment

The Village of Villa Park has multiple staff trained for cleaning, inspection and assessment, and they are deployed in two to three person crews for cleaning and inspection.

Crews are assigned a specific area of the collection system with an associated map and are

responsible for cleaning all assigned lines (or, in the case of preliminary evaluation, determining if cleaning is needed) within the assigned area and within the specified time frame. Crews receive training on use of equipment and how to address problems that might be encountered while cleaning the collection system (roots, fats, oils and grease).

Crews report back on a daily basis on progress and problems including any inconsistencies between the map and the actual sewer lines which are noted and submitted to the Utilities Foreman for entry into the database and correction of mapping or location errors.

Cleaning crews perform manhole inspections during cleaning.

The following equipment is available for cleaning:

Jetting equipment is used to clean most lines and remove blockages from lines.
Root saws can be attached to the jetting equipment and used as needed.

4. GRAVITY LINE PREVENTIVE MAINTENANCE

a. Fats, Oils and Grease (FOG)

Grease and grease-like products can significantly increase the likelihood of sewer overflows. Grease can also cause blockages or aggravate blockages due to roots or structural deficiencies. Restaurants, cafeterias, and other food service facilities, as well as industrial facilities, can discharge grease as part of their normal sanitary flows that can lead, in time, to blockages, backups and overflows. The discharge of fats, oils and grease (FOG) is regulated by the Village of Villa Park and the Salt Creek Sanitary District however, backups can sometimes occur. Areas of the collection system with known grease problems are inspected weekly and treated.

Pursuant to the Illinois Plumbing Codes and other regulations, Village of Villa Park enacted a policy and procedures requiring all commercial and industrial grease generating facilities to install and maintain a grease interceptor or automatic grease removal device, and maintain records of maintenance and operation. If the grease interceptor has not been maintained (with documented removal of accumulated grease and cleaning), has been bypassed, or if significant grease is discovered within the service connection, the Village of Villa Park will issue a letter to the owner giving notice of the ordinance/policy non-compliance and requiring action be taken to prevent further discharge of grease into the system.

The Village of Villa Park has a sewer jetter to clean the sewers in these problem areas at a high priority frequency and treats these lines on a weekly basis. Sewer related emergencies are handled by the Public Works Department.

b. Root Control

The Village of Villa Park currently uses mechanical root removal for sewer lines with chronic root problems. Root saw attachments are standard equipment on cleaning trucks. When a crew encounters roots during routine cleaning, a hydraulic saw is attached to the jetter and used to cut and remove the roots. The severity of the problem is recorded on the daily log, and if necessary, the pipe section is placed on the list for priority cleaning.

Cutting a tree's roots is like pruning the tree, and stimulates root growth into the system. Consequently, mechanical treatment must be repeated every year or two, which is factored into the cleaning schedules. The Village of Villa Park also uses chemical root treatment to control root growth in the collection system, and segments with chronic root issues are prioritized for lining.

c. Service Laterals

The Village of Villa Park is not responsible for service laterals. The service lateral from the building to the main sewer line is the property owner's responsibility. The Village of Villa Park will assist with repair to laterals that are located in the public right-of-way through the sewer reimbursement program. Reimbursement is also available for installation of a "Clean and Check" valve installed on the service lateral. If a complaint is received and the Utilities field crew determines that the problem is located in the service lateral between the building and the main, the Village offers the resident a list of licensed plumbers and provides a sewer reimbursement packet. The sewer reimbursement program assists homeowners with repairs to the service lateral. This program is first-come first-serve and subject to availability of funding.

Prior to street reconstruction projects Utilities staff televises all sanitary laterals within the project area and make residents to perform necessary repairs prior or during the project. This is mandatory as provided by the Village Ordinance. Residents are still eligible for the sewer reimbursement program.

5. PUMP STATION/FORCE MAIN MAINTENANCE

a. Mechanical Maintenance

The Village of Villa Park owns and operates seven (7) wastewater pump stations. The pump stations are routinely checked by trained personnel.

The performance of the Village of Villa Park pump stations is monitored through daily inspections and our SCADA system. During these inspections, maintenance workers review pump run hours, totalized flow, wet well levels and alarms. Back-up generators are exercised weekly.

Inspection, maintenance and repairs are recorded on daily check sheets and weekly reports. If a problem or maintenance issue is encountered, personnel must also report it to the Utility Foreman for resolution. Repairs are a higher priority than routine maintenance.

The Village of Villa Park has a Supervisory Control and Data Acquisition (SCADA) system for the seven (7) pump stations. The SCADA remotely controls and monitors pump station operations, and sends alarms to the operator on call in the event of a malfunction or emergency. The SCADA system records all activities at a pump station and provides a hard-copy printout for backup documentation. The SCADA provides continuous status of pump station operations for the following items:

- Number of pumps in operation
- Status of pumps (including operational alarms)
- Historic flow rate (24 hour Flow Chart)
- Pump start / stop cycles

- Power status (including power failure alarms)
- Wet well conditions (depth, lead / lag elevations, etc.)

Pump stations with the remote monitoring capabilities of an installed and fully functioning SCADA can be evaluated to determine the need for daily physical inspections.

Manufacturer's Operation and Maintenance (O&M) manuals for equipment are located in the Public Works Facility, currently located at 11 West Home Avenue, Villa Park, IL 60181.

Whether repairs are made by local vendors or by the Village of Villa Park personnel, all repairs are recorded and tracked on the weekly report.

b. Force Main Maintenance

The Village of Villa Park currently has seven (7) force mains in the collection system with a combined length of .41 miles. None of the force mains at these seven (7) locations are long enough to warrant air release valves.

6. REACTIVE MAINTENANCE

This chapter outlines the process used by the Village of Villa Park to respond to non-overflow, unplanned maintenance needs in our collection system. It also provides an overview of responsibilities for emergency events. While Chapter 3 outlines the Village of Villa Park's preventive maintenance and Appendix C details the Village of Villa Park's response procedures for emergency sewer overflows, this chapter is written to address those unscheduled maintenance events that don't result in overflows or backups of sewage into basements..

Sewer Overflow Response – see Appendix C – is always a priority situation, details are provided in the Village of Villa Park's Sewer Overflow Response Plan (SORP).

Responsibilities for reactive maintenance are assigned by the Utilities Foreman based on level of priority for response.

a. Corrective Maintenance

Most repair needs are identified while conducting routine maintenance, inspections and assessments.

When assets critical to the process fail, they are scheduled for corrective maintenance either on an urgent or routine schedule. Some of these repairs are handled under the operations and maintenance account, and some must be put in as capital improvements as part of our asset management activities depending on asset cost and life expectancy.

Corrective maintenance repairs include (but are not limited to):

- cleaning to eliminate flow problems that are noted during inspections
- spot repair or replacement of a pipe that shows signs of deterioration
- replacing a rattling or failed manhole cover
- repairing or replacing a pump that is becoming clogged or has been damaged by debris
- responding to, investigating and mitigating customer complaints (see the SORP, Appendix

C, for response to complaints of sewer overflows)
- repairing system parts subject to vandalism

b. Scheduling

Scheduling of repairs runs the range from repairing components found to be in substandard condition during inspection, immediate repairs to pump stations that are malfunctioning, to major, capital-intensive repair projects, such as a manhole-to-manhole pipe replacement or rehabilitation. An emergency, however, always supersedes scheduled maintenance. Major replacement or rehab may be capitalized outside of the annual operating budget.

Utilities Division staff document corrective maintenance needs on a spread sheet and in the service request system. Corrective maintenance tasks are recorded on a spread sheet and in the service request system. CCTV or other failure analysis may also be done by staff as a corrective maintenance task after a problem occurs. Findings may lead to a spot repair of the pipe, root cutting, root foaming with an herbicide, re-cleaning for grease or debris removal on a periodic preventive basis, and if so, these tasks are included in an update of our schedule as described in Section 3, Cleaning, Inspection and Assessment.

c. Complaint Response

The Public Works Department is responsible for responding to sewer related complaints. Complaints are generally related to sewer blockages, overflows, or odors. Response is performed by the Utilities Division during work hours and the employee on-call during off work hours.

Complaint response includes both assessing the complaint and resolving the problem. The majority of our complaints are related to blockages in lateral sewers. Utilities Division crew is dispatched to inspect Village's mains in the vicinity for back-ups. Crew removes blockages in the mains, if necessary. If Village's mains are not blocked, crew notifies the resident that the blockage is in the lateral and it is resident's responsibility to remove the blockage.

The Public Works Department tracks these complaints and response activities in our service request system, evaluates response time, trouble spots, and uses the information to assess our performance, update this plan and prioritize repairs.

7. EQUIPMENT AND TOOL INVENTORY

a. Essential Day-to-Day Items

The Village of Villa Park provides operations and maintenance crews with the essential work related items they use on a day-to-day routine basis. Should new or replacement equipment or tools be needed, the crew notifies the Utilities Foreman. The Utilities Foreman will issue the crew leader stocked items. For non-stocked items, the Utilities Foreman advises the crew of a vendor and requests a purchase order for the needed item(s). The crew will then procure the requested items through the vendor.

b. **Spare Equipment and Tools**

The Village of Villa Park keeps a limited supply of spare equipment and tools for personnel. In lieu of maintaining a full supply of spare equipment and tools for personnel, The Village of Villa Park works with local vendors for essential common equipment and tools. Non-formal bid equipment and tools can be purchased in amounts up to twenty thousand dollars ($20,000.00).

8. CAPACITY MANAGEMENT

a. Capacity Background

The Village of Villa Park conducted a series of studies on its collection system, both in the separated and combined areas, between 1979 and 1983, which included extensive sewer system evaluation survey (SSES) and modeling of its sewers. Based on the findings and recommendations of these studies, the Village constructed a system of relief sewers and a Wet-Weather Flow Treatment Facility (WWFTF) between the years of 1984 and 1986. The WWFTF has a design capacity of 25.8 mgd, 7.5 of which is designated for treatment of wet-weather flows from the separated sanitary system, with the remainder serving the combined sewer system.

In 1991 the Village of Villa Park instituted a sump pump disconnect program to alleviate the impact of I/I on the sewer system. Nearly all properties were inspected for illegal connections. Approximately 1,000 illegal connections were removed. Since that time, properties are inspected for illegal I/I sources at the time of property transfer.

In 2005, while considering the annexation of an unincorporated area adjacent to Basin 6, the Village conducted a study of the South Villa Lift Station, which serves nearly all of the South Villa area (Basins 6, 7, and 8). Subsequent to this study, the station capacity was increased from 2.8 to 4.5 mgd through the addition of upgraded pumps and a second force main, which was constructed in 2006.

In 2007, subsequent to a Notice of Violation from IEPA resulting from sanitary sewer overflows during extreme storm events, the Village prepared an update to their 1980 Master Plan to address the following:

- Capacity improvements
- Structural improvements
- Inflow and Infiltration removal

The study included the following evaluations:

- Modeling of the north and south separated sewer system areas to identify bottlenecks and capacity issues
- Smoke testing of targeted areas to identify sources of inflow and infiltration that would be cost-effective to remove and thereby reduce the excess flow within the system
- Re-routing of flow to reduce loading on overburdened sewers and to avoid creek crossings

Subsequent to the evaluation and recommendations, a 10-year improvement plan was proposed to address many of the concerns. The major recommendations were as follows:

- Construction of an upsized relief sewer on South Myrtle Avenue to remove the South Villa Interceptor sewer from the Myrtle/Euclid backyards.
- Remove the creek crossing at Cross Street and re-route flow to a new crossing from Villa Avenue directly to the South Villa Lift Station.
- Adjust overflow weir levels at the WWFCF to maximize operation of the sanitary side of the facility and minimize system surcharging.
- Upsize two sections on Villa Avenue upstream of Harrison in advance of the connection of unincorporated homes into the system.
- Re-route two sections of sewer from Summit to Harrison to Julia in advance of the connection of unincorporated homes into the system.
- Rehabilitate deteriorating sanitary sewers and lateral connections through lining, T-lining and grouting.
- Rehabilitate defective manholes.
- Evaluate need for South Villa Lift Station capacity increase.
- Continue with the private sector closing ordinance inspections to remove directly-connected storm sumps.

Following the storm resulting from Hurricane Ike in 2008 the Village conducted a study of the combined sewer area with the goal of alleviating flooding and reducing the stress on the combined sewer collection system. This ultimately resulted in adoption of a Stormwater Management Addendum to the Village's Comprehensive Plan. The key recommendations of the study were as follows:

- Accelerate implementation of CIP for the following areas: Astor Court vicinity, South Monterey Avenue between Park Boulevard and Washington Street, and Maple, Oak and Pine Streets near Summit Avenue.
- Implement sewer separation at the following locations: Wisconsin Avenue between Madison and Park, Yale Avenue between Madison and Park, and separation of Washington Street and Grant Street (Washington to dead end).

A summary of these previous studies is as follows:

Study Title	**Scope of Study**	**Date**
Sewer System Evaluation Survey – Areas 5 and 6	SSES of the separated sewer basins (1 through 9), including flow and rainfall monitoring, manhole inspection, building inspection, smoke testing,	August 1981

	dyed water flooding, and television inspection	
Sanitary Sewer System Study for Basins 6, 7, and 8 – South Villa Lift Station	Flow monitoring and modeling of the collection system tributary to the South Villa Lift Station (Basins 6, 7, and 8)	February 2002
Basin 6 Sanitary Service Expansion	Modeling to evaluate upgrading the South Villa Lift Station and potential incorporation of additional service area	June 2005
Sanitary Sewer Master Plan	Flow monitoring and modeling of both the North and South Villa separated areas, as well as smoke testing and televising in targeted areas	February 2008
Stormwater Management Addendum to the Village's Comprehensive Plan	Flow monitoring and modeling of the combined sewer area to primarily prioritize sewer separation projects in the CIP	2012-2013

Since 2008 the following improvements have been made:

- Construction of the 3,400 feet Myrtle relief sewer, Julia/Cross re-route, and Sugar Creek crossing to increase system capacity in the South Villa area
- Villa Avenue between Madison and St. Charles has been separated
- Division Street between Westmore and Addison has been separated
- Michigan Avenue between St. Charles and Division has been separated
- Upgraded storm sewer has been installed on Van Buren between Ardmore and Cornell and on Sunset between Lincoln and Addison
- Removal of creek crossings in the vicinity of Julia/Cross/Terry and Harrison/Cornell
- 65 point repairs
- Rehabilitation of 22 manholes
- 55,000 feet sewer lining during the 2009 – 2010 sewer rehabilitation project
- 6,000 feet lining in the 2014 northwest sewer rehabilitation project

Since the improvements have been completed there have been three storms that have exceeded a 5-year storm event:

- September 13-14, 2008 – 6.7 inches in two days
- July 24, 2010 – 6.9 inches in 12 hours
- April 18, 2013 – 9.3 inches in 24 hours

The following observations have been made concerning the operation of the system:

- Two previously recurring SSO locations in the South Villa area (the South Villa Lift Station and the intersection of Julia Drive and Cross Street) have not overflowed since 2010.
- A recurring SSO location at Myrtle Avenue near Julia Drive has since overflowed just once, during a 100-year storm event in April 2013.
- The recovery time of the excess flow for a 5-year storm at South Villa is significantly reduced from approximately 7 days to 3 days.
- The frequency of SSOs at manhole 1-047 at Fulton and Vermont has been reduced.

Using the skeletal hydraulic model developed in 2007 and updated for existing conditions, a capacity analysis of the existing system was conducted comparing hydraulic capacity throughout the collection system to tributary flows. The capacity is expressed using the measure of sustainable peaking factor (SPF), or the ration of hydraulic capacity to average dry-weather flow (ADWF), which is a simple measure of the system's ability to handle increased flows during wet-weather events. These results, displayed on Exhibit 5 in Appendix C, indicate that the collection system, inclusive of the capacity provided by the relief sewer system, has capacity equating to more than 7 times ADWF throughout and, in most locations, more than 10 times ADWF.

Sanitary sewer overflows and building and basement backups caused by capacity restrictions in Villa Park's collection system have historically occurred in the following collection system locations. These locations are all in the North Villa area, as previous SSO locations in the South Villa area have mostly been addressed by the capacity improvements undertaken since 2005.

Date	**Location of Capacity Problem**	**Cause of Capacity Issue**
Recurrent	Villa and Maple	Located in a localized depression (only 6.6 feet deep), downstream siphon
Recurrent	Vermont and Fulton	Located in a localized depression (only 5.2 feet deep), downstream siphon
Recurrent	Rt. 64 and Villa	Shallow manhole (5.5 feet deep), potential hydraulic losses from configuration of discharge location and/or downstream control

A more detailed description of these areas are as follows.

Maple and Villa (MH 1-018)

MH 1-018 at the intersection of Maple and Villa sits in a localized depression and is only 6.6 feet deep. Therefore, it can withstand just a few feet of surcharge before overflowing. A primary cause of overflows in this location appears to be the restriction imposed by the siphon crossing under the intersection of St. Charles and Villa. The dual 8-inch and 14-inch siphons have less than a third of the cross-sectional area of both the incoming 30-inch sewer and the outgoing sewers (24-inch plus 18-inch relief sewer), which results in a large head differential across the siphon.

Fulton and Vermont (MH 1-047)

MH 1-047 at the intersection of Fulton and Vermont sits in a localized depression relative to its adjacent streets and is only 5.2 feet deep. Therefore, it can withstand just a few feet of surcharge before overflowing. As with MH 1-018, the restriction imposed by the siphon under St. Charles and Villa increases the likelihood of overflows.

North Villa Lift Station Discharge (MH 1-032)

The discharge manhole of the North Villa Lift Station force main (MH 1-032 at North and Villa) has overflowed in large storms when the lift station continuously operates at its maximum capacity. The station's capacity is approximately 1,300 gpm with two pumps in

operation. By comparison, the downstream 18-inch sewer along Villa between North and Vermont has an average capacity of approximately 1,500 gpm, which would be sufficient to convey the peak discharge. However, there are a few potential causes for the overflows:

- The localized hydraulics near the discharge may be unfavorable, as it appears on the GIS that the force main discharges at a 90-degree angle relative to the outgoing pipe at MH 1-032. Also, there is another manhole, MH 1-031, less than 15 feet away from MH 1-032, which also has a second incoming gravity line from the west that discharges at a 90-degree angle relative to the incoming line from MH 1-032. This configuration adds hydraulic losses that could contribute to surcharge levels.

- The outgoing 18-inch segment from MH 1-031 is less sloped than the rest of the run of sewer along Villa. This segment has only a 900 gpm capacity and would be expected to surcharge when the lift station is operating at 1,300 gpm. Based on the model, this surcharging would not be severe enough on its own for MH 1-032 to overflow, but it could be a contributing factor.

- The surcharging is likely exacerbated by downstream conditions, most notably the restriction caused by the siphons crossing under St. Charles Road. However, if the overflow is caused mainly by downstream control, it is extremely unlikely that MH 1-032 would overflow before MH 1-025, which is located in the east parkway of Villa Avenue north of the CNRR tracks, as this manhole is shallower (4.7 feet deep) than 1-032 and its rim elevation is approximately three feet lower than the rim of MH 1-032.

In order to remedy capacity restrictions that result in surcharging and SSOs in the locations described above, the following work is planned to be conducted within the next few years:

1. Inspect manholes and sewers in area tributary to North Villa to identify sources of inflow and infiltration
2. Monitor flows near the recurrent SSO locations in North Villa to narrow down the cause of SSOs
3. Update the hydraulic model to evaluate options for addressing these remaining SSO locations, including capacity improvements and I/I reduction

Following these investigations and analysis, the Village intends to act upon identified improvements that would cost-effectively address the locations of surcharging and SSOs. A timeframe for implementation of these improvements will be developed subsequent to the findings of these investigations.

In addition, the following work is planned in the near term to complete the work originally proposed in the master plan, reduce I/I, and to improve the hydraulic performance of the system:

4. Complete rehabilitation of the backyard sewers and manholes in the 1950s area
5. Complete rehabilitation of identified defective sewers in the older areas of South Villa (1920s through 1950s sewers)
6. Rehabilitate all remaining concrete sewers in the North Villa Basins installed during the 1950s

In conjunction with these ongoing improvements, the Village will continue to enforce removal of I/I sources identified during close-of-sale inspections, in accordance with the Village's sewer use ordinance.

b. Sewer Capacity Certification/ Connection Policy
Sections 25-406 and 25-422(a.) of the Village's Sewer Use Ordinance mandate that any new development requiring the connection of its sanitary sewer service to the Village of Villa Park sewer system is reviewed to determine whether adequate sewer system capacity exists to convey the new wastewater flow from the proposed development to our wastewater treatment facility.

c. Prohibited Discharges
Section 25-431 of the Village of Villa Park's Sewer Use Ordinance prohibits the connection of any stormwater or groundwater discharges into the sanitary sewer system and grants the Village access to inspect a property to determine if such inspections exist. All properties that transfer ownership undergo such an inspection upon close of sale, and the buyer may only occupy the property upon receiving a certificate of compliance which certifies that the property does not contain any prohibited connections to the sanitary sewer system.

9. RESOURCES AND BUDGET

a. Budget Process

The Utilities Division prepares an annual budget to secure revenues to finance the operation and maintenance of its collection system. The Utilities Division's Waste Water Fund is a separate Enterprise Fund. Ordinances allow for the collection of revenues to fund the system operation and maintenance typically through connection and permit fees, property tax, and user charges. The fee schedules are reviewed on a routine basis to ensure revenues track with system expenses.

b. Capital Improvement Plan (CIP)

Appendix D shows the proposed CIP which lists the scheduled and budgeted projects for the next 5 years. Water and Sewer projects are funded through the Water and Sewer Capital Fund which receives the majority of its money through water and sewer rates.

10. SEWER SYSTEM PREVENTIVE MAINTENANCE PLAN UPDATES

a. Plan Update Process
The Village of Villa Park will complete as-needed reviews of our Preventive Maintenance program and this plan beginning in January 2019. The review will consider the progress that has been made in developing and implementing our Preventive Maintenance Program, the results of our monitoring program described in Section b., below, and will incorporate updates to this Plan including:

- Changes to organizational structure, information management, contacts, and system maps,
- Changes to information on the collection system, such as the size and age of pipes, to incorporate information on repairs completed,
- Incorporation of successful cleaning, inspection and assessment program improvements,
- Changes to our Sewer Use Ordinance and Fats, Oils and Grease programs,
- Updates to our pump station inspection and maintenance program,

- Updates as we evaluate our collection system capacity and complete the SSES investigations described in Section 8,
- Budget and Capital Planning updates.

As the sewer inspection history of any segment of pipe is retrievable electronically and the data is used to develop condition ratings, this aids in prioritizing future sewer rehabilitation projects, maintenance activities, and updating this plan. The latest version of our Preventive Maintenance Plan will be made available at www.invillapark.com.

b. Monitoring, Measurement, and Program Modifications

As noted in Section 1, the Village of Villa Park maintains complaint and blockage records in a service request system, maintains records of cleaning and other preventive maintenance activities, and records problems (e.g., excessive debris, FOG buildup, observed manhole defects) identified through regular sewer maintenance activities in the work order management system.

The sewer inventory, mapping and maintenance database, discussed in Chapter 1, tracks and utilizes records related to any sewer segment in our system. Using the GIS and asset management system, complaints and service calls are recorded and linked to locations and system assets and used to guide future preventive and reactive maintenance activities.

The information logged in the service request system are used to help measure the effectiveness of our program by tracking various parameters related to service calls and our maintenance and inspection activities. The Village also measures effectiveness by comparing SSO trends from previous years and identifying system components that continually contribute to system failures. Specifically, the following parameters are used to measure the effectiveness of this Plan and its effectiveness in reducing SSOs and meeting the goals described in Chapter 1:

- Frequency of operation of the Wet-Weather Flow Treatment Facility
- Runtime of major lift stations to measure reductions in I/I
- Number of SSOs per year
- Number of dry weather SSOs per year
- Number of SSOs per year by cause (e.g., roots, grease, pipe failure, I/I, pump failure or other deficiency, etc.)
- Response time to SSOs and other service calls (time from call received to first responder arriving on site)
- Length of gravity sewers cleaned annually
- Length of gravity sewers CCTV inspected annually
- Record of pump station maintenance work orders completed annually
- Quantity of system assets rehabilitated (repaired or upgraded) each year
- Number of FOG inspections and compliance with FOG requirements
- Safety history/incidents

Updates to this Plan will address issues identified through this monitoring program and during future investigations and improvements as described in Section 8 and those included in the Capital Improvement Program, as well as any other such efforts undertaken prior to the reevaluation period.

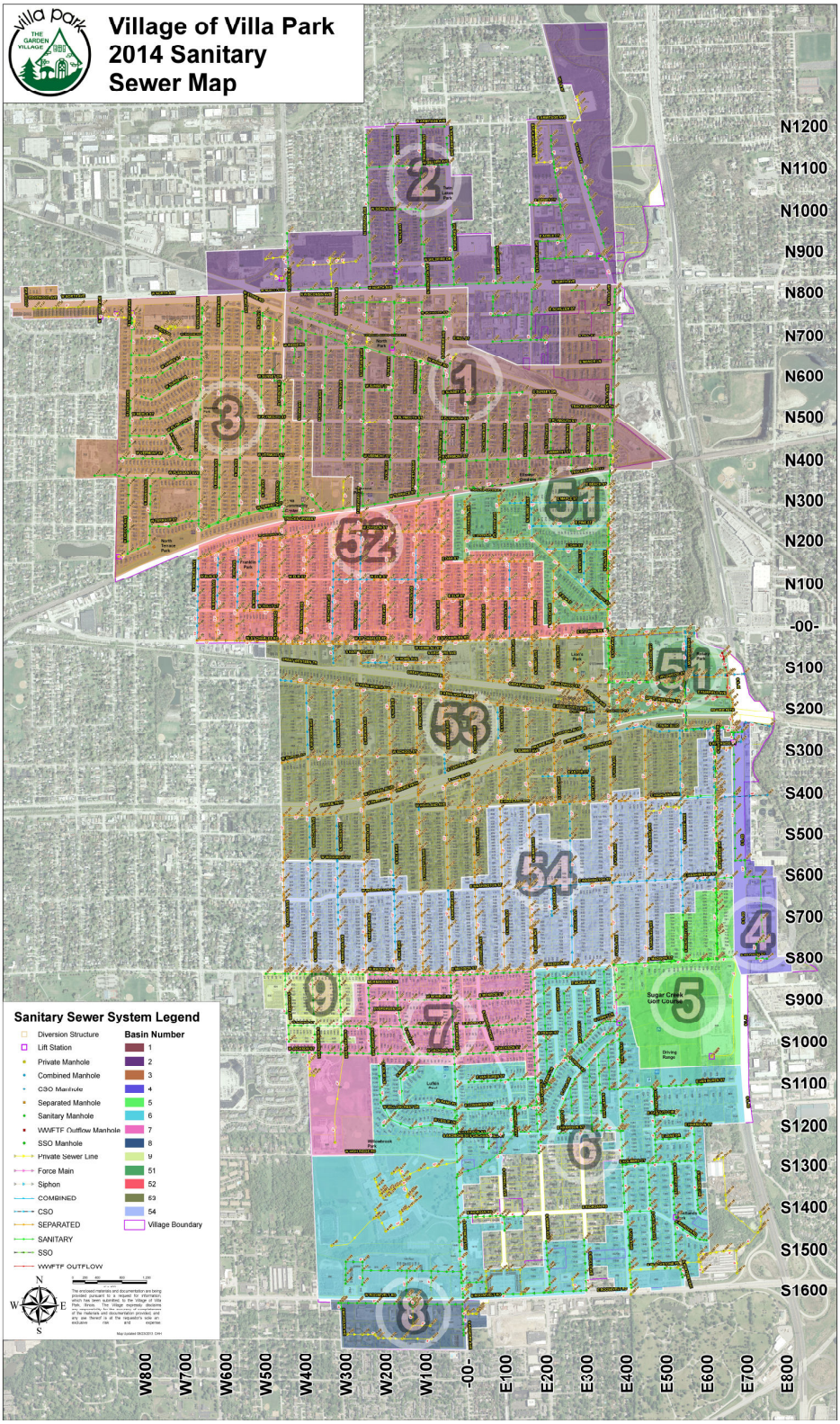
Appendix A

Sanitary Sewer Overflow History

SSO Date	Location	Cause of Release
1/30/2013	523 S. Riverside	Tree roots
3/10/2013	909 S. Harvard	Unknown
	430 N. Fulton	1.5 inches of rainfall and snow melt
	Vermont and Fulton	1.5 inches of rainfall and snow melt
	Villa and Maple	1.5 inches of rainfall and snow melt
4/17/2013	Vermont and Fulton	9.6 inches of rainfall
	Villa and Maple	9.6 inches of rainfall
	Julia and Myrtle	9.6 inches of rainfall
	Rt. 64 and Villa	9.6 inches of rainfall
5/23/2013	523 S. Riverside	Tree roots
	Rt. 64 and Villa	2.9 inches of rainfall
	Villa and Maple	2.9 inches of rainfall
	Vermont and Fulton	2.9 inches of rainfall
12/17/2013	518 N. Lincoln	Tree Roots and Grease
1/21/2014	345 W. North Avenue	Grease
1/25/2014	4 W. Plymouth	Grease
2/21/2014	Rt. 64 and Villa	1.9 inches of rainfall
	Villa and Maple	1.9 inches of rainfall
6/19/2014	Villa and Maple	3.15 inches of rainfall
7/1/2014	Villa and Maple	2.9 inches of rainfall
	Vermont and Fulton	2.9 inches of rainfall
8/22/2014	Villa and Maple	2.7 inches of rainfall
	Rt. 64 and Villa	2.7 inches of rainfall
	Vermont and Fulton	2.7 inches of rainfall
1/20/2015	44 N. Princeton	Grease

Appendix B

Village of Villa Park Sanitary Sewer Map



Appendix C

Sewer Overflow Emergency Response Procedures

When a dry weather sanitary sewer back-up is reported by a property owner, a member of the Operations Staff is dispatched to confirm if the back-up is occurring in the Village maintained Sanitary Sewer System, or if the back-up is occurring in the owner's private sewer line. This is confirmed by checking both upstream and downstream manholes. If it is determined that the main line sewer is clear, the homeowner is notified, handed a list of licensed contractors, and presented with our sewer reimbursement packet. However if it is determined that the back-up is occurring in the Village owned sanitary lines then the Village's sewer cleaning equipment is used to clean the blocked sewer. If that effort is unsuccessful, the internal closed circuit television equipment is used to inspect the line to determine the exact nature of the obstruction. If more aggressive cleaning or root removal won't solve the problem, emergency underground utility locates are requested and the area is excavated to make the necessary repair.

The Village of Villa Park is committed to eliminating all Sanitary Sewer Overflows (SSO). However, it is not possible to prevent all such events. If an SSO occurs the Village notifies the IEPA office within 24 hours of the event with a Sanitary Sewer Overflow or Bypass Notification Summary Report (combined sewers only). The Village may televise the line to determine the source of the backup, followed up with the appropriate remediation to correct the problem.

When wet weather sanitary sewer overflows or basement back-up occur the Utilities Division staff checks the downstream collector and interceptor sewers to see if they are surcharged. If the downstream collector and interceptor sewers are surcharged, the line with the sanitary sewer overflow or basement back-up will be flagged for an internal televised pipe inspection to attempt to identify infiltration and inflow sources. A follow up phone interview is usually conducted. The tributary area may also be targeted for smoke, sump pump inspections, and dye testing to determine infiltration and inflow sources.

Appendix D

Capital Improvement Plan

VILLAGE OF VILLA PARK, ILLINOIS
CAPITAL IMPROVEMENT PROGRAM
FY 2015-16 THROUGH FY 2019-20
PROJECT EXPENDITURES SUMMARY

Project Name	Total Cost	Previous Years	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	Future Years	Funding Source(s)	% Village Funding
2015 STREET IMPROVEMENT PROGRAM (VARIOUS STREETS)	4,180,330	114,000	4,066,330	-	-	-	-	-	a	100.0%
2016 STREET IMPROVEMENT PROGRAM (VARIOUS STREETS)	1,328,000	-	60,364	1,267,636	-	-	-	-	a	100.0%
ADAMS STREET IMPROVEMENT PROJECT (ADDISON TO ARDMORE)	887,706	-	-	-	45,490	842,216	-	-	a	100.0%
ARDMORE STREETSCAPE IMPROVEMENT PROJECT (NORTH AVENUE TO UNION PACIFIC RAILROAD)	1,983,207	131,130	1,852,077	-	-	-	-	-	a, d	48.4%
ASTOR AND MYRTLE IMPROVEMENT PROJECT (ASTOR - SUMMIT TO MYRTLE; MYRTLE - PARK TO HIGHLAND)	1,357,544	40,000	-	88,546	1,228,998	-	-	-	a	100.0%
BIERMANN AVENUE IMPROVEMENT PROJECT (NORTH AVENUE TO SUNSET)	910,400	-	-	-	-	66,018	844,382	-	a, i	31.5%
CENTRAL AND MYRTLE IMPROVEMENT PROJECT (CENTRAL, CORNELL TO VILLA; MYRTLE, KENILWORTH TO CENTRAL)	823,200	-	-	40,873	782,327	-	-	-	a	100.0%
CHARLES AVENUE IMPROVEMENT PROJECT (ST. CHARLES TO OAK)	1,004,320	-	-	-	68,655	935,665	-	-	a, i	42.0%
COLLEGE STREETS WATER MAIN IMPROVEMENT PROJECT (VARIOUS STREETS)	2,688,200	-	211,441	2,476,759	-	-	-	-	a, i	12.4%
CRESCENT DRIVE IMPROVEMENT PROJECT (MYRTLE TO VILLA)	80,000	-	-	3,636	76,364	-	-	-	a	100.0%
DIVISION STREET IMPROVEMENT PROJECT (CORNELL TO VILLA)	690,400	-	-	-	36,700	653,700	-	-	a	100.0%
DRAINAGE ASSISTANCE PROGRAM	240,000	-	40,000	40,000	40,000	40,000	40,000	40,000	a, j	50.0%
EUCLID AVENUE IMPROVEMENT PROJECT (WASHINGTON TO MADISON)	396,000	-	-	-	-	20,576	375,424	-	a	100.0%
EUCLID AVENUE IMPROVEMENT PROJECT (KENILWORTH TO CENTRAL AND PARK TO HIGHLAND)	513,600	-	-	-	-	25,982	487,618	-	a	100.0%
EUCLID AVENUE IMPROVEMENT PROJECT (ST. CHARLES TO DIVISION)	498,400	-	-	-	-	-	-	498,400	a	100.0%
HARRISON AND ORCHARD HILL IMPROVEMENT PROJECT (HARRISON, ARDMORE TO SUMMIT; ORCHARD HILL)	395,200	-	-	20,964	374,236	-	-	-	a	100.0%
HARVARD AVENUE IMPROVEMENT PROJECT (NORTH AVENUE TO NORTH DEAD END)	446,800	-	-	22,309	424,491	-	-	-	a	100.0%
HARVARD AVENUE WATER MAIN IMPROVEMENT PROJECT (RIDGE TO SOUTH END)	1,422,920	-	-	92,819	1,330,101	-	-	-	a, i	50.8%
HARVARD AVENUE PAVEMENT WIDENING (ARMITAGE TO SOUTH DEAD END)	100,500	40,000	60,500	-	-	-	-	-	a	100.0%
HIGH RIDGE ROAD RESURFACING PROJECT (ARDMORE AVENUE TO WEST VILLAGE LIMITS)	398,000	-	35,000	363,000	-	-	-	-	a, f	48.2%
HOLLY COURT AREA IMPROVEMENT PROJECT (VARIOUS STREETS)	923,000	-	-	-	-	47,863	875,137	-	a	100.0%
IEPA WASTEWATER LOAN PROJECTS	2,106,390	16,390	1,210,000	-	880,000	-	-	-	a, i	9.8%
JACKSON STREET IMPROVEMENT PROJECT (ADDISON TO YALE)	219,600	-	-	-	11,482	208,118	-	-	a	100.0%

VILLAGE OF VILLA PARK, ILLINOIS
CAPITAL IMPROVEMENT PROGRAM
FY 2015-16 THROUGH FY 2019-20
PROJECT EXPENDITURES SUMMARY

Project Name	Total Cost	Previous Years	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	Future Years	Funding Source(s)	% Village Funding
LESLIE LANE IMPROVEMENT PROJECT (JACKSON TO ARDMORE)	230,200	-	-	-	12,950	217,250	-	-	a	100.0%
MAPLE STREET IMPROVEMENT PROJECT (ILLINOIS TO VILLA)	817,567	-	-	-	58,477	759,090	-	-	a	100.0%
MICHIGAN AVENUE IMPROVEMENT PROJECT (MADISON TO JACKSON)	1,884,102	-	-	122,458	1,761,644	-	-	-	a, i	63.0%
MICHIGAN AVENUE IMPROVEMENT PROJECT (KENILWORTH TO CENTRAL)	544,200	-	-	28,418	515,782	-	-	-	a	100.0%
MICHIGAN AVENUE IMPROVEMENT PROJECT (PARK TO MADISON)	3,063,000	85,000	2,978,000	-	-	-	-	-	a, i	55.6%
MONROE STREET IMPROVEMENT PROJECT (ARDMORE TO SUMMIT)	539,400	-	-	-	-	-	-	539,400	a	100.0%
MONROE STREET IMPROVEMENT PROJECT (HARVARD TO ARDMORE)	301,600	-	-	-	17,400	284,200	-	-	a	100.0%
MONTEREY AVENUE IMPROVEMENT PROJECT (PARK TO WASHINGTON)	2,190,680	-	-	-	-	156,590	2,034,090	-	a	100.0%
MONTEREY STORMWATER QUALITY PROJECT (WASHINGTON TO MADISON)	134,500	14,900	119,600	-	-	-	-	-	a, c, h	44.5%
MYRTLE STREET IMPROVEMENT PROJECT (DIVISION TO OAK)	82,000	-	-	-	4,500	77,500	-	-	a	100.0%
MYRTLE AVENUE IMPROVEMENT PROJECT (MADISON TO TERRY)	602,600	-	-	45,028	557,572	-	-	-	a, i	22.7%
NORTH SIDE SIDEWALK IMPROVEMENT PROJECT	1,047,533	103,333	51,000	893,200	-	-	-	-	a, g	41.9%
OAK STREET IMPROVEMENT PROJECT (DIVISION TO VILLA)	360,069	-	-	-	23,301	336,768	-	-	a	100.0%
PARK BOULEVARD IMPROVEMENT PROJECT (VILLA TO EAST END)	1,577,133	77,733	1,499,400	-	-	-	-	-	a	100.0%
PINE STREET IMPROVEMENT PROJECT (SUMMIT TO VILLA)	919,549	-	-	-	76,630	842,919	-	-	a	100.0%
PLYMOUTH STREET IMPROVEMENT PROJECT (ARDMORE TO VILLA)	772,000	-	-	-	-	38,600	733,400	-	a	100.0%
PRINCETON AVENUE IMPROVEMENT PROJECT (UNION PACIFIC RAILROAD TO ELM)	435,499	-	-	-	24,625	410,874	-	-	a, i	91.6%
PRINCETON WATER MAIN IMPROVEMENT PROJECT (RIDGE TO TERRACE)	1,782,700	50,000	609,681	1,123,019	-	-	-	-	a, b	77.6%
RIDGE ROAD IMPROVEMENT PROJECT (YALE TO ARDMORE)	846,057	-	-	59,629	786,428	-	-	-	a, i	36.6%
ROOSEVELT ROAD IMPROVEMENT PROJECT	93,694	-	-	93,694	-	-	-	-	a	100.0%
SIDEWALK IMPROVEMENT PROGRAM	214,783	164,783	50,000	-	-	-	-	-	a, j	62.9%
ST CHARLES ROAD BRIDGE IMPROVEMENT PROJECT	4,920,000	-	140,000	140,000	150,000	150,000	4,340,000	-	a, f	20.0%
SUMMIT AVENUE IMPROVEMENT PROJECT (MAPLE TO DIVISION)	455,703	-	-	-	37,975	417,728	-	-	a	100.0%

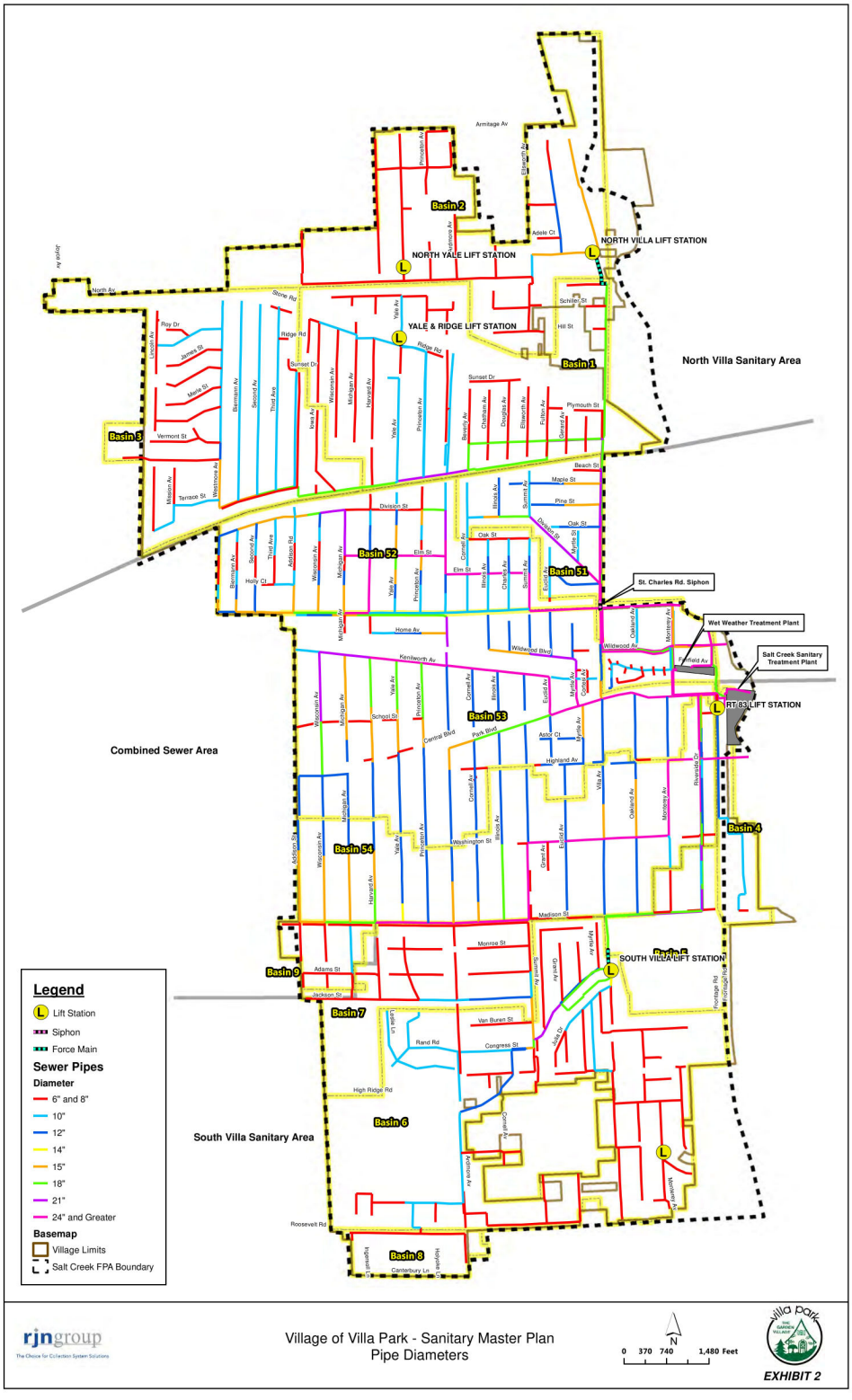
VILLAGE OF VILLA PARK, ILLINOIS
CAPITAL IMPROVEMENT PROGRAM
FY 2015-16 THROUGH FY 2019-20
PROJECT EXPENDITURES SUMMARY

Project Name	Total Cost	Previous Years	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	Future Years	Funding Source(s)	% Village Funding
SUMMIT AVENUE RESURFACING PROJECT (MADISON TO ROOSEVELT)	838,800	-	-	-	69,900	768,900	-	-	a, f	41.7%
SUNSET DRIVE IMPROVEMENT PROJECT (ADDISON TO YALE)	175,520	-	-	8,301	167,219	-	-	-	a	100.0%
TERRY KAYE AREA IMPROVEMENT PROJECT (VARIOUS STREETS)	452,520	-	-	24,510	428,010	-	-	-	a	100.0%
TWIN LAKES AREA STREET IMPROVEMENT PROGRAM (VARIOUS STREETS)	715,000	21,500	693,500	-	-	-	-	-	a	100.0%
VERMONT STREET IMPROVEMENT PROJECT (ARDMORE TO VILLA)	352,200	-	-	-	-	18,050	334,150	-	a	100.0%
WATER METERING SYSTEM UPGRADES	2,050,000	330,000	300,000	710,000	710,000	-	-	-	a, i	30.7%
WESTMORE AVENUE IMPROVEMENT PROJECT (DIVISION TO ST. CHARLES)	1,049,260	-	-	-	-	-	75,469	973,791	a, i	32.6%
WISCONSIN AVENUE IMPROVEMENT PROJECT (KENILWORTH TO MADISON)	2,599,172	-	-	-	-	-	161,068	2,438,104	a, i	59.8%
WISCONSIN AVENUE IMPROVEMENT PROJECT (MADISON TO JACKSON)	466,396	-	-	-	-	-	26,972	439,424	a	100.0%
WISCONSIN AVENUE IMPROVEMENT PROJECT (STONE TO VERMONT)	619,200	-	-	31,600	587,600	-	-	-	a	100.0%
YALE AVENUE IMPROVEMENT PROJECT (MADISON TO JACKSON)	967,643	-	-	-	-	-	80,637	887,006	a	100.0%
YALE AVENUE IMPROVEMENT PROJECT (PARK TO MADISON)	471,600	-	-	-	-	-	26,800	444,800	a	100.0%
YALE AVENUE IMPROVEMENT PROJECT (RIDGE TO PLYMOUTH)	875,907	-	-	-	-	60,792	815,115	-	a, i	44.1%
TOTALS	**$59,041,504**	**$1,188,769**	**$13,976,893**	**$7,696,399**	**$11,288,857**	**$7,379,399**	**$11,250,262**	**$6,260,925**		**78.3%**

Funding Sources:
a) Village Funds (TIF, MFT, Street Improvement, Capital Projects, Equipment Replacement, Building Improvement, Stormwater Buyout, Water Supply, Wastewater)
b) CDBG Grant
c) IGIG Grant
d) ITEP Grant
e) PARC Grant
f) STP Grant
g) TCM Grant
h) Other Grant(s)
i) IEPA Loan(s)
j) Private Funds

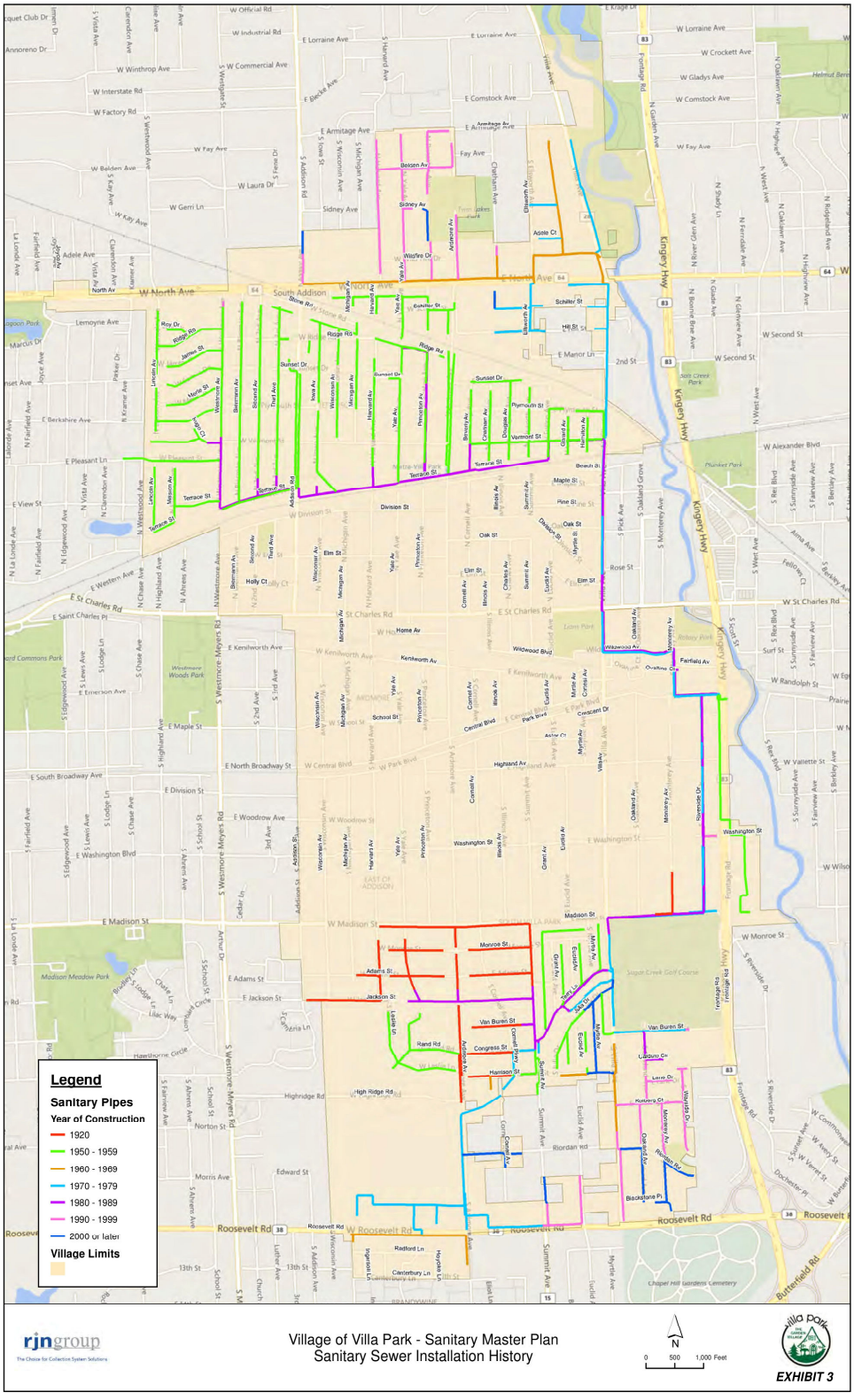
Appendix E

Sanitary Master Plan – Pipe Diameters



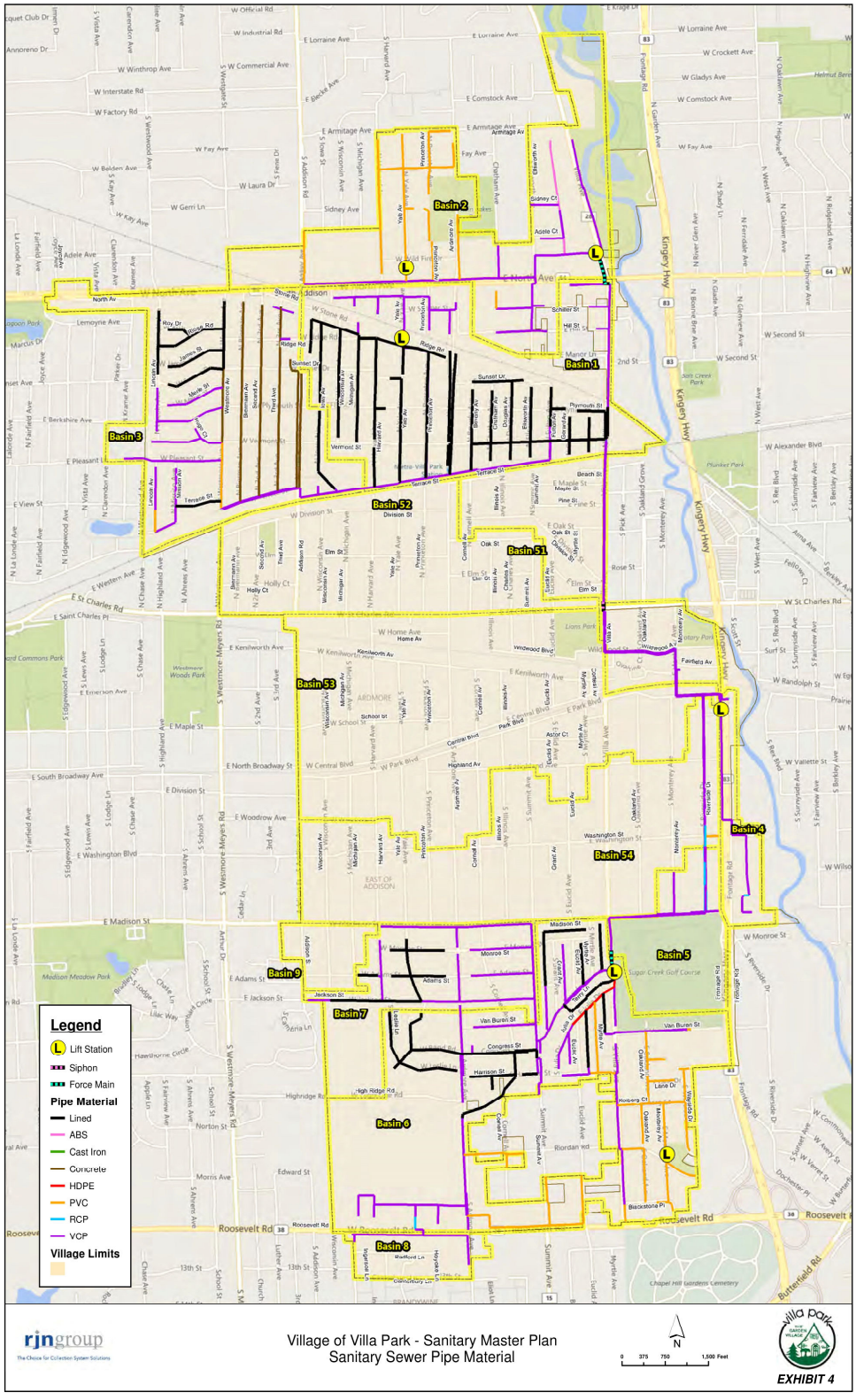
Appendix F

Sanitary Master Plan – Sanitary Sewer Installation History



Appendix G

Sanitary Master Plan – Sanitary Sewer Pipe Material



Appendix G

Sanitary Master Plan – Sustainable Peaking Factors