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**1.0 INTRODUCTION**

Sanitary sewer collection systems have a finite capacity to carry wastewater based on the size of the system components. The size of the components is based upon an analysis of the contributory flows into the system plus a factor for growth. The analysis considers residential, commercial and industrial sources of flow plus a designed leakage rate for the system components. With time, the design basis for the system may change resulting in flows in excess of the designed flow. Changes can include population increases beyond the growth factor used in the design basis, integrity deterioration resulting in a leak rate greater than the design basis, and inappropriate storm water connections. These factors can lead to overflows of the system as the increased flows exceed the ability of the collection system or lift stations to convey the wastewater.

Likewise failing to maintain the collection system can result in overflows irrespective of any flow increases. Materials such as grease, rags, roots and other foreign objects can create blockages within the system. Regular maintenance and cleaning regiments can eliminate these occurrences, particularly grease and root development.

Overflows, regardless of the cause, release untreated sewage to surface waters, at times leading to substantial negative impacts on the receiving body. The majority of impaired waters as recorded by States in their 303d lists are impaired due to nutrients, sediment, pathogens, metals and organic enrichment. Sewage overflows contribute to these impairments and can have acute impacts such as fish kills and beach closures.

**2.0 GOALS**

The Village of (Your City) has developed this Capacity, Management, Operation and Maintenance Plan to put into place the ideas, concepts and procedures to be used to prevent sewer overflows to the extent possible and practicable. The goals of the plan are:

• Prevent overflows from the sanitary sewer to the extent possible and practicable.

• Manage the assets of the Public Works Dept. inclusive of personnel and equipment to affect a regular maintenance program and to be able to respond to emergency overflows of the system.

• Promote safety by verifying all workers have the required equipment prior to any work performed. Keep the Public Works crew up to date with all safety procedures through continuing education classes.

• Prioritize maintenance, rehabilitation and replacement activities for the portions of the collection system.

• Complete a percentage of preventative maintenance on the collection system including, but not limited to: televising, cleaning, root removal and inspections.

• Enforce appropriate ordinances that will help to better manage the performance of the collection system, including inspections for private sump connections and I/I reduction. Review and update these ordinances as necessary.

• Worth together with the Village Board to ensure there is ample funds budgeted for any projected projects on the collection system.

• Educate the public on the importance of an efficient collection system through mailings, radio or newspaper announcements and information on the Village’s website.

**3.0 COLLECTION SYSTEM MANAGEMENT**

Management of the Public Works Dept. will be a proactive endeavor so that we are able to meet the goals of this plan as well as to provide our customers with fiscally, technically and environmentally sound operations of the system. An overview of our system along with our management approach is contained in the following sections.

**3.1** Organization and system Parameters

**3.1.1** System Profile

The Village of (Your City) sanitary sewer system consists of gravity and forced main components. The system is not interconnected with other sanitary collection systems. Maps of the system are maintained by the utility at Village Hall (address) and the Public Works Office (address). The system profile is as follows:

|  |  |
| --- | --- |
| Table 3-1: System Profile System Name & Address  | Village of (Your City) address, (Your City), WI zip code  |
| Population of Village of (Your City)  | #  |
| Annual Precipitation  | #”  |
| Director of Public Works  | (Your name) Ph: (your #) Fax: (your #)Cell: (your #)Emails: (Your email address)  |
| Number of Public Works Employees  | #  |
| Wastewater Treatment Plant  | WPDES Permit #(your #) 3 Basin SBR Constructed: yearUpgrade Modifications: year  |
| Plant Design Capacity  | 0.465 MGD  |
| Average Daily Wastewater Volume  | 0.095 MGD  |
| Miles of Gravity Sewers  | #(8”-24”)  |
| Miles/Feet of Force Mains  | # mile/# ft.  |
| Number of Lift Stations  | #  |
| Number of Manholes  | #  |

**3.1.2** Critical Components

In general, the collection system meets the needs of the Village of (Your City). However, some areas that have had a history of backups due to either old components, insufficient slopes of gravity mains, obstructions or the intrusion of roots are: address, address and address to address in the Village of (Your City).

Grease and grease like products can be significant contributors of sewer overflows. Restaurants and 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) are regulated by Village Ordinance Chapter #

Several areas within the system are isolated from population centers and as such an overflow could go undetected for an extended period of time. The Village of (Your city) has two interceptors – Northeast Interceptor and the South Interceptor. These interceptors run across open farm land.

All users are discouraged from discharging fats, oils, greases and all copper based products. Reminders will be sent out in mailings regularly reminding citizens of procedures. Educational material is available at the Village Hall.

The system has three lift stations to move sewage from low elevation areas to higher elevation area. Periodic loss of power may occur due to storms and electrical grid equipment failures. All of the Village’s lift stations and the Treatment Plant are monitored with either a SCADA Alarm System or an on-site light and alarm. The Lift Stations all have back up power available. Therefore, none of the lift stations are considered critical components due to a lack of backup power.

The critical components as described above are shown in the Village of (your city) Collection System Routine Maintenance Schedule (Table 4-1).

**3.1.3** Organizational Structure

Figure 1: Organizational StructureDirector of Public Works

**3.2** Job Descriptions

Job descriptions lay out the foundation for the requirements and responsibilities of each person within the organizational structure. Employees are expected to comply with the elements of the job descriptions including any requirements for professional licenses and continuing education. Failure to meet the basic elements of an employee’s assigned job description may be reason for termination, demotion or other disciplinary action deemed appropriate. Job descriptions for each position are available at Village Hall in the Public Works Office upon request.

**3.3** Training

Each employee is required to periodically attend safety training courses upon approval by an immediate supervisor. Training may be in the form of formal off-site or on-site training, on-the-job training, college/vocational course work or other appropriate venue. The training must be directly relevant to the employee’s duties as described in his/her job description. Certified Operators are also required to obtain continuing education units (CEUs) for his/her license.

Required Training

Within the first three months of employment, employees are required to attend a course in lock out/tag out and confined space entry. The Director of Public Works or his/her designee will approve the course prior to attendance.

Other potential course topical areas include:

• Routine line maintenance – jet cleaning

• Traffic control

• Environmental/safety regulations

• Pump theory, operation including speed control, and maintenance

• Laboratory procedures, equipment calibration, sample collection and handling

• Electrical and instrumentation

• Public relations

• Sewer overflow response and reporting

• Collection system evaluation including smoke testing and closed circuit TV

• Pipe repair

• Collection system rehabilitation including pipe bursting, cured in place, slip lining, and trenching/shoring

• Heavy equipment operation

• Wastewater System Operations and Maintenance

The operating budget shall contain a line item sufficient to provide a mix of on and off site training such that each employee can obtain professional/trades development training per year inclusive of continuing education needed for license requirements. The line item funding will be inclusive of course cost, travel, lodging and meals and incidental expenses consistent with typical costs for the location.

**3.4** Public Information and Education

The public has a direct impact on the condition and maintenance of the collection system. The Village of (Your City) makes every effort to educate the public through postings on the website, radio broadcasts, newspaper articles, public meetings and brochures. In addition, the village will notify affected customers prior to any scheduled maintenance work with the distribution of notices by going door to door. For example, many blockages in the sewer system are caused by grease. The village encourages users to avoid disposing of fats, oil and grease into the sewer system.

The Village also offers information to help residents understand why basement backups happen, how they can be prevented and what steps citizens should take if a sewer backup affects their property.

**3.5** Legal Authority

The Village of (Your City) has taken steps in order to enforce the legal authority necessary to regulate the flow entering the collection system from residential, commercial and industrial customers by passing Sewer Ordinance Chapter # on (date). A summary of those elements included are as follows:

1) Inflow/Infiltration – “No person shall discharge or cause to be discharged, any unpolluted waters, such as storm water, ground water, roof runoff, subsurface drainage or cooling water to any sewer.”

2) Sewer Design, Installation, Testing & Inspection Standards – “The property owner is responsible for all costs and expenses for the installation and connection of new sewer laterals where available. The size, slope, alignment and materials of construction of any new sewer lateral, along with the methods to be used in excavating, placement of the pipe, jointing, testing and back-filling the trench shall all conform to the requirements of the building and plumbing code, or applicable rules and regulations of the Village of (Your City). New connections to the system shall not be allowed unless all downstream components have a reserve capable of accepting them.”

3) Controlling Flow from Satellite Systems – The Village of (Your City) does not receive flow from satellite systems.

4) Utility Access – “The Village of (Your City) shall be permitted to have an authorized representative inspect any new or old installations for compliance with the regulations of Chapter #.”

5) Pretreatment Program – “Pretreatment is required to modify or eliminate wastes that are harmful to the structures, processes or operation of the wastewater Treatment facility. This shall be done at his or her expense.”

6) Grease Controls – “Grease, oil and sand interceptors shall be provided when, in the opinion of the approving authority, they are necessary. All interceptors shall be of a type and capacity approved by state plumbing code, and shall be located for easy access for cleaning and inspection. The owner is responsible for removal of the captured material and maintaining all cleaning records.”

7) Violations & Penalties – Chapter # describes the penalties for any person found to be in violation of any provisions of the ordinance. A copy of the ordinance may be obtained at Village Hall.

**3.6** Asset Management

The ability of the Village of (Your City) to effectively manage its collection system is directly related to its ability to maintain access to the most current information concerning the facilities. Maintenance of this current information is an effort involving all members of the collection system from the staff answering the telephone to the worker in the street. Operational information informs and clarifies financial information. This will make the financial information more useful for the policy makers, leading to better decisions. The system should be kept current with accurate information. A satisfactory management information system should supply the Village with the following advantages:

* Maintain preventive maintenance and inspection schedules
* Offer budgetary justification
* Track repairs
* Organize capital replacements plans
* Manage tools and equipment inventories
* Record customer service inquiries, complaints or requests
* Provide measurement of effectiveness of program and O&M activities

The assets of the Village of (your city) sanitary sewer system include the collection system, lift stations, Wastewater Treatment Plant, generators, vehicles, office and laboratory facilities and all related appurtenances. Both paper and computer-based records for these assets are located at Village Hall and the Public Works Office.

**3.7** Condition Assessment

The condition of an asset is dependent upon a number of factors including its overall condition, maintenance requirements, whether it is over or under capacity for its intended service and how well the asset is performing the job it was designed to perform. All of these factors are subjective in nature so the condition assessment is meant to be an estimate and not an exact analysis. Following is the assessment criteria that the Village of (Your City) will use to assess the condition of the utility’s assets.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 3-2: Condition Assessment

|  |
| --- |
| Score |
| Performance Assessment  |
| 0 New  | New  |
| 1 Excellent No failures, no I&I | Excellent  | No failures, no I&I  |
| 1 Good Rare failure, minor infiltration, no inflow  |
| 3 Average Failures typical of like equipment, infiltration exceeds design, minor inflow |
| 4 Poor Frequent failures, substantial I&I but no overflows |
| 5 Salvage Needs substantial maintenance to keep operational, overflows occur |

 |
|

|  |
| --- |
| Capacity Assessment |
| 0 Oversized +25 Meets current need plus more than 25% |
| 1 Oversized <25% Meets current needsplus up to 25% more |
| 2 Fullsized Meets current need |
| 3 Undersized Current need exceeds capability but able to  control through operational means |
| 4 Undersized <25% Current need exceeds capability by up to 25%,  can't control |
| 5 Undersized +25% Current need exceeds capability by more than 25%, can't control |
| Non-PM Maintenance Assessment |
| 0 None No non-PM maintenance requirements  |
| 1 Normal Normal requirements |
| 2 Minor More than normal but not significant |
| 3 Significant Requires frequent maintenance |
| 4 Renew Substantial including frequent component |
| 5 Replace Nearly unserviceable |
| non-PM excludes routine items such as greasing, cleaning, oil changes or Other consumable part replacements at normal intervals |
| Total Score |
| 0 New or like new | New or like new  |
| 1-3 Excellent | Excellent  |
| 4-6 Good | Good  |
| 7-9 Average | Average  |
| 10-12 Poor | Poor  |
| any component score of 5 Replace | Replace  |

 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**4.0 COLLECTION SYSTEM OPERATION AND MAINTENANCE**

Collection system operation and maintenance (O&M) consists of inspection, evaluation, preventative maintenance, and cleaning of sewer main and laterals, manholes and lift stations to maintain flow and mitigate inflow and infiltration. O&M varies by the equipment type, condition, age and operating history with equipment identified as critical receiving maintenance at greater frequencies. Section 3.1.2 described the Village of (Your City)’s critical components. The following is a baseline O&M schedule. Periodic factors may necessitate a more frequent O&M schedule for individual components. Appropriate corrective actions or temporary mitigation measures are initiated based upon the findings of the routine O&M activities.

**4.1** Collection System

Table 4.1: Collection System Routine Maintenance Schedule

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Description | Known Issues | Weekly | Monthly | SemiAnnually | Annually |
| (List address of trouble spot) | History of roots |  |  | Clean w/Vactor Truck | Clean w/Vactor Truck & televise sewer mains with reoccurring problems (roots, I/I, etc.) |
| Master Lift Station, Lift Station #1 and Lift Station #2 | Grease build up and rags | Visual check for general condition, grease buildup, floats, transducers. Test pumps, alarm system, generator |  | Remove pumps for inspection and clean with vacuum truck |  |
| (List address of trouble spot) | Roots |  |  | Clean w/Vactor Truck  |  |
| (List address of trouble spot) | Roots |  |  | Clean w/Vactor Truck  |  |
| Remainder of collection system | No known problems | L.S.-visual check for general condition, grease buildup, floats, transducers. Test pumps, alarm system, generator |  |  | Visual check for general condition and overflow evidence, clean 25% of the collection system and televise any areas with suspected problems |

The Village of (Your City) cleans the sanitary sewer per the routine maintenance schedule using the following equipment: Vactor Truck, portable trash pump, portable centrifugal pump, hot water pressure washer and fire hose for flushing. Additional cleaning equipment and manpower are available via contract operations with several area vendors. The Village of (Your City) does not anticipate using contract services unless the following conditions exist:

• System equipment inoperable for extended period

• Manpower shortage

• Unusually high cleaning demand due to unforeseen circumstances

All sewer cleaning records are kept on file at the Public Works Office and are also used for updating the Village’s GIS mapping system. The records include such information as date, time, crew members, manhole or Lift Station ID#, type of work performed, cause and location of any stoppage, method of cleaning, length of sewer main cleaned, televised or repaired, any further actions necessary.

**4.2** Sewer System Inspection

Visual inspection of manholes and pipelines are the first line of defense in the identification of existing or potential problem areas. Visual inspections take place on both a scheduled basis and as part of any preventative or corrective maintenance activity. Visual inspections provide additional information concerning the accuracy of system mapping, the presence and degree of I/I problems and the physical state-of-repair of the system. By observing the manhole directly and the incoming and outgoing lines, it is possible to determine structural condition, the presence of roots, condition of joints, depth of debris in the line and depth of flow. The Public Works Director can examine the records of visual inspections to ensure that the following information is recorded:

• Manhole identification number location

• Cracks or breaks in the manhole or pipe

• Accumulation of grease, debris or grit

• Wastewater flow characteristics

• Inflow or Infiltration

• Condition of manhole cover

• Presence of corrosion

• Offsets of misalignments

• Condition of the frame

• Evidence of surcharge

• Atmospheric hazard measurements (hydrogen sulfide)

Close circuit television analysis of the interior of sewer lines is one of the most comprehensive evaluation methods available as it allows surveying the interior conditions of a pipe. Areas of the sewer system that are experiencing frequent blockages and/or inflow/infiltration should be analyzed by TV analysis to determine the cause of the problems. Tree roots, misaligned joints, saddles, and collapses are common reasons for blockages to occur as grease and other materials begin to accumulate in these areas. Likewise cracks, joint problems and illegal connections can be identified with the aid of television inspection. TV inspection of the sewer system will be utilized in areas with know and repeat problems to diagnose the cause(s) of the problems.

**4.3** Mapping

The importance of maintaining accurate, current maps of the collection system cannot be overstated. Efficient collection system maintenance repairs are unlikely if mapping is not adequate. Collection system maps should clearly indicate the information that personnel need to carry out their assignments. The collection system maps contain information on the flowing:

• Sewer Gravity Mains

• Building/house laterals (where available)

• History of Basement backup complaints

• Manholes

• Cleanouts

• Force Mains

• Lift Stations

• Service area boundaries

• Other landmarks (roads, water bodies, etc.)

• Aerial overlay

The collection system maps have a permanently assigned numbering system which uniquely identifies all elements of the collection system. The maps are simple and easy to understand. Easements and property lines are also included on the maps. Other information included on the maps is a scale, north arrow, date the map was drafted and the date of the last revision. Maps may come in different sizes and scales to be used for different purposes.

Geographic Information System (GIS) technology has made the mapping and map updating process considerably more efficient. GIS is a computerized mapping program capable of combining mapping with detailed information about the physical structures within the collection system.

The Village of (Your City) completed a GPS survey of every component of the sanitary, storm and water systems in 2011. This information was then used as a basis for the GIS mapping programs. Village office and field personnel can easily view all attributes of each components of the collection system. These include, but are not limited to:

• Sewer Pipe Material and Diameter

• Sewer Pipe Length, Slope and Direction fo Flow

• Sewer Pipe Televising Dates and Information

• Manhole Rim and Invert Elevations

• Construction History of Sewer Pipes, Manholes and Lift Stations

• Maintenance History of Sewer Pipes, Manholes and Lift Stations

• Note of any critical areas pertaining to Basement Backups or Inflow/Infiltration

Specific procedures have been established for correction of errors and updating maps and drawings. Field personnel are trained to recognize discrepancies between field conditions and map data so that office personnel can make the changes necessary to correct the existing mapping system. As-built plans are also used to update the maps. These new components are also field verified with GPS equipment using the same County coordinates. The maps are available to both office and field personnel.

**4.4** Lift Stations

Table 4.2: Lift Station Design Information

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Lift Station | Location | Year Constructed | WetWell Size | Pump Size(hp) | Pump year | Capacity (GPM) | Backup power | Alarm system |
| Master WWTP | address |  |  |  |  |  | Permanent Generator | SCADA, on-site light & alarm |
| #1 name or address | address |  |  |  |  |  | Portable Generator |  |
| #2 address | address |  |  |  |  |  |  |  |

All of the Lift Stations are equipped with two submersible pumps.

In the case of a complete Village-wide electrical outage, portable pumping by Village personnel and private waste haulers and non-use of the low flow Lift Stations would accommodate the system’s needs on a temporary basis.

A permanent generator has been installed at the Master Lift Station located at the Wastewater Treatment Plant. The (Your City)-(Your city) Fire Department also has a portable generator capable of running all of the Lift Stations.

During an emergency, Lift Station #1 will be pumped first and the Village will contact a local hauler to help keep the remaining Lift Stations pumped. All of the Lift Stations can also be mechanically pumped during an emergency.

**4.4.1** Lift Station Maintenance

All Life Station equipment is to be maintained in accordance with the manufacturer’s specifications. A team from (Your pump supplier/maintenance supplier) inspects every Lift Station on an annual basis to insure they are in good working condition. The Village is given a copy of their maintenance reports. In addition, the following maintenance activities are conducted by Public Works personnel on a weekly basis:

• Inspect the Level Sensing Floats

• Inspect Transducer

• Inspect for Grease Buildup

• Test the Pumps

• Test Alarm System

• Hookup and run generator under load (annually)

Specification manuals for each of the Lift Station pumps are located in the respective electrical panels.

**4.5** Force Mains

The Village of (Your City) personnel run both pumps simultaneously on a weekly basis at all Lift Stations to scour the force main. Procedure such as poly pigging, televising, etc. will be considered as needed.

**4.6** Repairs

Routine maintenance will identify repair needs within system components. The appropriate repair for any given problem is dependent upon the nature of the problem and cannot be prescribed in this plan. However, a priority hierarchy has been established to structure what and when repairs are to be accomplished. The hierarchy is based upon identifying and repairing critical components first.

Critical components are parts of the collection system which if failure occurs will result in system failure and sewer overflow. Such items may include failure of a pump, failure of a backup generator to start, or obstruction in the sewer line. Other problems identified by maintenance activities will be less acute and can be repaired on a lower priority basis. This may include loose or missing manhole bricks, broken manhole covers, lift station lighting, etc. When normal maintenance activities identify the need for component repairs or when problems are brought to the attention of the system by customers or others, the problem and corresponding repair will be assigned a priority ranking based on the following hierarchy.

The response time is a requirement for the Village of (Your City) to complete. Not meeting the required response time will be considered a failure on the part of the system to meet the requirements of this plan. The repair time goal is a stated goal. Many factors, some out of the control of the system, will impact the ability of the system to make the necessary repairs. Not meeting the repair goals will not be considered a plan failure but will be noted in self-audits from which plan and or operational changes may be fashioned

Table 4.3: Collection System Response and Repair Hierarchy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Problem**  | **Priority**  | **Response Time**  | **Action**  | **Repair Time Goal**  |
| Active Sewer Overflow  | 1  | Within 1 hour of receiving report  | Stop overflow, return system to normal operation  | Within 4 hours of arriving on site  |
| Failure of Critical Component, Overflow/Bypass Will Occur if Not Repaired  | 1  | Within 1 hour of receiving report or discovering problem  | Repair or replace component, return system to normal operation  | Within 4 hours of arriving on site  |
| Unsafe Condition Poses Risk to public or Employees  | 1  | Within 1 hour of receiving report or discovering problem  | Mitigate and repair to eliminate unsafe condition  | Mitigate risk within 2 hours of arriving on site, repair within 8 hours if public risk, 7 days if employee risk  |
| Evidence of System Surcharging and Intermittent Overflow  | 2  | Within 1 day of receiving report of discovering problem  | Clean sewer line, check for proper lift station operation. Re-evaluate problem following cleaning/repair. Begin I&I evaluation and corrections if not corrected.  | Within 8 hours of arriving on site for cleaning and station repairs. Initiate I&I evaluation and corrective actions with 30 days  |
| Failure of Backup Power System  | 2  | Within 3 days of receiving report or discovering problem  | Repair or replace equipment as needed.  | Within 10 days of response  |
| Evidence of Surcharging, No Overflow Evidence  | 3  | Within 1 week of receiving report or discovering problem  | Clean sewer line, check for proper lift station operation. Re-evaluate problem following cleaning/repair. Begin I&I evaluation and corrections if not corrected.  | Within 8 hours of arriving on site for cleaning and station repairs. I&I evaluation and corrective actions within 180 days  |
| Failure of Monitoring or Measuring Equipment  | 3  | Within 3 days of receiving report of discovering problem  | Make repairs or replace as needed  | Repairs within 7 days of response. Replacement within 30 days.  |
| Evidence of I&I Non-surcharging  | 4  | Complete evaluation of cause within 90 days of problem  | Make corrective actions based on I&I evaluation findings  | Within 360 days  |
| Component failures non-critical maintenance  | 5  | Evaluate repair need within 180 days of discovering problem  | Make repairs  | Within 360 days |

**4.7** Parts and Equipment Inventory

An inventory of spare parts, equipment and supplies is maintained by the Village of (Your City). The inventory is based on equipment manufacturer’s recommendations, supplemented by historical experience with maintenance and equipment problems.

The Public Works Director is responsible for assuring that each crew always has adequate tools. He/She should consider the frequency of usage of the part, how critical the part is, and finally how difficult the part is to obtain when determining how many of the part to keep in stock. Spare parts are kept in a clean, organized and well protected stock room.

Files for the Village’s inventory of parts are maintained at the Public Works Office. Below is a current list of equipment located at the Village Garage:

(1) Portable Trash Pump

(1) Portable Centrifugal Pump

Various sizes and lengths of Hoses for Pumps

Various Fire Hoses with fittings and adapters

(1) Gas Ventilation Blower

(2) Portable Generators

(1) Loader

(2) Dump Trucks

(1) Flatbed Truck with Hoist

(1) Pick-up Trucks w/Warning Lights & Hand Tools

(1) Vactor/Jetter Truck

(1) Sewer Camera

(1) 20’ Equipment Trailer

(1) Hot Water Pressure Washer

(1) Street Sweeper

(1) Skidsteer w/Snow Blower, Broom & Flail Mower

(1) Snow Blower

(1) Line Locators

(1) Portable Spotlight

(4) Extension Cords

(1) First Aid Kits

(4) Fire Extinguishers

Personal Safety Equipment

Barricades & Flashers

Below is a current list of available contract operations with several area vendors if needed:

Septic Haulers (name) (phone #)

Septic Haulers (name) (phone #)

Pipe & Fittings Supplier (name) (phone #)

Pump Suppliers (name) (phone #)

**5.0 SYSTEM EVALUATION AND CAPACITY DETERMINATION**

The concept of capacity for a wastewater system has two basic elements; the capacity of the wastewater plant and the capacity of the collection system. Inflow/infiltration and growth can result in wastewater flows exceeding the design capacity of either the plant or collection system or both.

A Sanitary Sewer & Lift Station Evaluation was prepared by (Engineer company) in (Date). The evaluation focused on the existing trunk sanitary sewer along with the existing lift stations. The ultimate development areas around the Village were also considered for a guide for expansion. Future expansion evaluation is general in nature, and detailed feasibility studies will be needed to confirm sizes and location of future facilities.

Existing flows were determined on a sewer district basis using the number of units within the sewer district and area wastewater flow rates for various types of land use. Land uses, and not population projections were used to determine future flows. Average flows for residential land uses were peaked in accordance with standard peaking factors. Peak flows were used as a basis for evaluating the existing sewer system and lift stations. In developed areas, peak flows were compared with the system capacities to identify those facilities that might be undersized at ultimate development. Each service area was analyzed independently. Of the three existing lift stations, all have adequate capacity today to handle ultimate flows.

**5.1** Wastewater Treatment Plant

The Village of (Your City) Wastewater Treatment Plant is located at (address) and we own approximately # acres. All wastewater from the Village enters the Master Lift through a 18” main. The Treatment Plant was constructed in 2006 with a design flow of 465,000 gpd. It consists of a three basin SBR with effluent disposal to (receiving water).

**5.2** Collection System

Capacities within the collection system vary by the size of the piping that makes up the system. It is important to determine capacities within the collection system to gauge whether portions are subject to surcharging and overflows and to develop a baseline from which planning decisions regarding new connections may be made. Even if the treatment plant flows are within the design capacity, portions of the collection system could be receiving flows in excess of their design capacities. Some items that may affect sewer capacity are: flat sewer pipes, surcharging, bottlenecks or constrictions, chronic basement backups, SSO’s (sanitary sewer overflows), excess debris (solids, grease), root growth, I/I, manhole corrosion, new connections and Lift Station Evaluation, the collection system is in fairly good condition.

**5.3** Lift Station Capacity Determination

Table 5.1: Lift Station Capacity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Lift Station** | **Est. Ultimate Peak** **Flow (GPM)** | **Existing Firm Capacity (GPM)\*** | **Ultimate Firm Capacity (GPM)** | **Improvement** |
| Master WWTP |  |  |  | Sufficient |
| #1 |  |  |  | Sufficient |
| #2 |  |  |  | Sufficient |

Firm Capacity assumes one pump running.

All design standards for the Village of (Your city) follows (State Plumbing Code, Municipal code, DNR code) for sewer design work, municipal sewer inspections or for construction design and inspections.

**6.0 OVERFLOW EMERGENCY RESPONSE PLAN**

An Overflow Emergency Response Plan is required for dealing with both routine and catastrophic emergencies. Routine emergencies include situations such as overflowing manholes, sewer main breaks, localized electrical failure and power outages at Lift Stations. Catastrophic emergencies include floods, tornadoes, earthquakes, other natural events, serious chemical spills or widespread electrical failure.

Procedures for the Emergency Response Plan should be understood and practiced by all personnel in order to ensure safety of the public and the collection system personnel responding. The Plan is located in the Public Works Office at (address) and Village Hall at (address). The Public Works Director shall review and update this document annually. Detailed records of emergencies and responses are documented.

The Village of (Your city) has taken steps towards the security of the collection system by installing a SCADA Alarm System.

The following flow chart describes the actions that will be taken in the event of an overflow of the collection system.

Figure 2: Emergency Response Flow Chart

**MUNICIPAL WATER, SEWER and PUBLIC WORKS SERVICE MUTUAL AID AGREEMENT**

**INCLUSIVE OF: Village of (Name of town you have agreement with), Village of (Name of town you have agreement with), (etc).**

**THIS AGREEMENT** is made pursuant to Wisconsin Statutes, which authorize the joint and cooperative exercise of powers common to the contracting parties. The intent of this Agreement is to make municipal water, sewer and public works service equipment, personnel and other related resources available to the contracting political subdivisions from the other contracting political subdivisions. The purpose of providing such assistance shall include, but not be limited to: a local emergency, municipal personnel training and public education. This agreement would allow for back-up municipal water, sewer and public works service equipment, personnel and other related resources in case of secondary support when the emergency is beyond the capability of the party.

1. **Definitions.**

"Party" means a political subdivision.

"Local Emergency" means the actual or threatened existence of conditions of disaster or extreme threat to the safety of persons or property with in the political subdivision caused by human or natural conditions such as air pollution, fire, flood, storm, wind, tornado, earthquake, explosion, transportation accident, hazardous material problem, sudden or severe energy shortage, work force shortage caused by strike, pandemic or epidemic, public health and safety emergency, riot or other occurrences.

"Requesting Official" means the person designated by a Party who is responsible for requesting Assistance from other Parties.

"Requesting Party" means a Party that requests assistance from other Parties. "Responding Official" means the person designated by a party who is responsible to determine whether and to what extent that Party should provide assistance to a Requesting Party.

"Responding Party" means a Party that provides assistance to a Requesting Party.

"Assistance" means municipal water, sewer arid public works services personnel and equipment.

1. **Request for Assistance.**

Whenever, in the opinion of a Requesting Official, there is a need for assistance from other parties, the Requesting Official may call upon the Responding Official of any other party to furnish assistance.

Updated July 19, 2011

1. **Response to Request.**

Upon the request for assistance from a Requesting Party, the Responding Official may authorize and direct a Party's personnel to provide assistance to the Requesting Party. This decision will be made after considering the needs of the Responding Party and the availability of resources.

1. **Recall of Assistance.**

The Responding Official may at any time recall the assistance when in their best judgment or by an order from the governing body of the Responding Party, it is considered to be in the best interests of the Responding Party to do so.

1. **Command of Scene.**

The Requesting Party will be in command of the mutual aid scene. The personnel and equipment of the Responding Party will be under the direction and control of the Requesting Party until the Responding Official withdraws assistance. The Responding Party would report to incident command to be signed in for the event and responsible for signing out as well.

1. **Workers' Compensation.**

Each Party is responsible for injuries or death of its own personnel, to the extent provided by law. Each Party will maintain workers' compensation insurance or self-insurance coverage, covering its own personnel while they are providing assistance pursuant to this agreement. Each Party waives the right to sue any other Party for any workers' compensation benefits paid to its own employee or volunteer or their dependents, even if the injuries were caused wholly or partially by the negligence of any other Party or its officers, employees, or volunteers.

1. **Damage to Equipment.**

Each Party is responsible for damages to or loss of its own equipment. Each Party waives the right to sue any other Party for any damages to or loss of its equipment, even if the damages or losses were caused wholly or partially by the negligence of any other Party or its officers, employees, or volunteers.

1. **Liability.**

Personnel acting under this Agreement may not be considered, for liability purposes, as an employee or agent of the other Party for their actions taken pursuant to this Agreement, regardless of the supervision or control of the person' s actions while within the other political subdivision. All personnel will be considered as continuing to be employees of the employing agency in the person's home political subdivision.

Except as provided below, any person acting under this Agreement must continue to be covered by their employing agency for purposes of civil liability. Any personnel acting within the other political subdivision under this Agreement is considered while so acting to be in the ordinary course of their employment within their home political subdivision and to be protected by any statutory immunity from liability and limits of liability enjoyed in their home political subdivision.

1. **Charges to the Requesting Party.**

The Responding Party will submit to the Requesting Party an itemized bill if the responding party chooses to bill for the ·actual cost of any assistance provided, including salaries, overtime, equipment usage, materials, supplies and other necessary expenses. The Requesting Party will reimburse the party providing the assistance for that amount.

Any charges are not contingent upon the availability of federal or state government funds. The requesting party shall reimburse the responding party for any consumable items.

Referenced and incorporated in this agreement all parties will use the current state of Wisconsin Department of Transportation equipment rates at the time of the billing.

 **10. Joint MunicipalWater, Sewer and Public Works Personnel Training and Public Education**

The terms of this Agreement shall apply to any joint municipal water, sewer and public works personnel training exercises and public education, which the parties choose to participate in.

1. **Duration.**

This Agreement will be in force for a period of twelve (12) years from the date of execution. This Agreement shall be reviewed every three years. Any party may withdraw from this Agreement upon thirty (30) days written notice to the other party or parties to the Agreement.

1. **Execution.**

Each Party hereto has read, agreed to and executed this Mutual Aid Agreement on the date indicated. Each Party to this Agreement shall maintain an executed copy of this Agreement. · Please check and initial below which department or departments in your municipality are participating in this Mutual Aid Agreement.

Mayor or Municipal Executing Official (Signature) ··

Updated (Date)

**Mutual Aid Signees**

**2011 City**

Baldwin Municipal Water Deer Park, Village of Ellsworth, Village of Glenwood City, City of Hammond, Village of Hudson, City of

New Richmond, City of North Hudson, Village of Prescott, City of

River Falls, City of (Your City), Village of Star Prairie, Village of

Somerset, Village of

**Signee Telephone**

(Name), Village President 715.684.3426

(Name), Village President 715.269.5213

(Name), Village President 715.273.4742

(Name), Mayor 715.265.4227

(Name), Village President 715.796.2727

(Name), Mayor 715.386.4765

(Name), Mayor 715.246.4268

(Name), Village President 715.386.5141

(Name), Mayor 715.262.5544

(Name), Mayor (o)715.425.0900

(Name), Village President 715.749.3126

(Name), Village President 715.248.3933

(Name), Village President 715.247.3395

The Village of (Your City) shall review this CMOM annually (prior to submittal of the CMAR) to ensure all of the components are being implemented, evaluated and updated as needed. The following Annual Review Checklist shall be used for this process. Revisions will then be listed at the end of this document.

Figure 4: Annual Review Checklist

Date of Review

Check each item after verifying no change or making the necessary updates. Keep copy for each year with CMOM.

⃝ System Profile (p. 4)

⃝ Critical Components (p. 4)

⃝ Legal Authority (p. 7)

⃝ Asset Management (p. 7)

⃝ Condition Assessment (p. 8)

⃝ Collection System (p. 10)

⃝ Manhole Inspections (p. 10)

⃝ Lift Station Information (p. 13)

⃝ Equipment Inventory (p. 16)

⃝ System Capacity (p. 17)

⃝ Lift Station Capacity (p. 18)

⃝ Emergency Response Flow Chart (p. 19)

⃝ Mutual Aid Agreement (p. 20)

⃝ Sewer Use