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CITY OF GRASS VALLEY

Sewer System Management Plan

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GRASS VALLEY
A PLACE TO LIVE AND THR VE

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INTRODUCTION

The City of Grass Valley (City) owns and operates a sewer collection system that collects wastewater from a total service population of approximately 12,800. The system is comprised of 1,385 manholes and approximately 98,300 feet of sewer collection system pipelines of varying sizes dependent upon the area dynamics of location and number of customers served. The system also has eight (8) lift stations that are maintained by utility operations personnel.

Organizationally, the Utilities Division and its labor allocation is part of the Department of Public Works and under the direction of the Utilities Superintendent or designee.

The City has dedicated funds for both short- and long-term repair and replacement of critical mechanical and non-mechanical infrastructure elements of the sewer collection system contained both in annual operating budgets and within the City's Capital Improvement Plan (CIP). Two funding sources (user rates and impact fees) are reviewed annually during the budget process to ensure that program priorities are consistent with the needs of operating an effective utility.

SEWER SYSTEM MANAGEMENT PLAN GOALS

The goals of the City's Sanitary Sewer System Management Plan (SSMP) are:

- To efficiently and effectively manage, operate, and maintain all parts of the City's sewer collection system
- To provide adequate capacity to convey peak wastewater flows. Adequate capacity, for the purposes of this SSMP, is defined as the capacity to convey peak wastewater flows per the City Improvement Standards
- To prevent and reduce the frequency of sanitary sewer overflows (SSOs)
- To mitigate the impacts that are associated with any SSO that may occur
- To meet all applicable regulatory requirements
- To provide and make available comprehensive staff training on the proper operations and maintenance of the sewer collection system, its infrastructure and equipment

The following are changes and projects to prevent the spills and/or improve SSO responses (three year plan):

- Implement Nexgen software for sewer collection system work order tracking and asset management
- Purchase easement machine to improve efficiency and reach areas with limited access
- Mount a Ring-O-Matic vacuum unit on a truck to provide better response to SSOs.

PUBLIC WORKS DEPARTMENT ORGANZIATIONAL STRUCTURE

This section of the SSMP identifies City staff responsible for implementing this SSMP, responding to SSO events, and meeting the SSO reporting requirements.

The City's authorized representative (Legally Responsible Official [LRO]) in all sewer system matters is the City Manager or his designee. The Utilities Director and the City Engineer have designated authority to submit verbal, electronic, and written reports on behalf of the City to the Central Valley Regional Water Quality Control Board (Central Valley Water Board), State Water Resources Control Board (State Water Board), Nevada County Department of Environmental Health, California, Department of Fish and Game (CDFG), Nevada Irrigation District (NID), and California Emergency Management Agency (CAL-EMA). The Utilities Director and City Engineer are currently enrolled to certify electronic SSO reports submitted to the State Water Board via its electronic reporting system, California Integrated Water Quality System (CIWQS). All management personnel mentioned in this section are authorized to submit CIWQS reports. Ultimately, the Utilities Director is responsible for developing, implementing, and maintaining all elements of the SSMP. Emergency contact information for all personnel, including management staff is readily available to all department staff and on-call personnel.

A copy of the organizational structure is included in **Appendix A**. Further details on the chain of communication for reporting SSOs is provided in the section, Overflow Emergency Response Plan.

LEGAL AUTHORITY

The City of Grass Valley Municipal Code, Title 13, is the legal authority for regulating the sewer collection system. The City's Building Standards Code is also part of the Municipal Code, Title 13. The Municipal Code can be easily accessed at www.cityofgrassvalley.com in a searchable format. Additionally, the City has authority for designing, constructing, installing, testing, and inspecting all public improvements. The Design Standards and Construction Standards and Standard Details, collectively referred to as "Improvement Standards" were revised most recently in May 2016. The Improvement Standards apply to, regulate, and guide the design and construction of all public improvements, and set guidelines for certain private improvements within the City. The Improvement Standards are posted on the City's website at www.cityofgrassvalley.com.

OPERATIONS AND MAINTENANCE PROGRAM

SEWER COLLECTION SYSTEM MAPPING

The City’s Engineering Division maintains sewer collection system maps in AutoCAD and record drawings. Sewer collection system maps are available electronically to all field crews, which can submit map change work orders to the Engineering Division if they discover a discrepancy or need to add/remove an element of infrastructure onto the mapping system. The Engineering Division confirms the changes and incorporates the updates into the system through a third-party contractor. The goal is to complete critical revisions within three (3) months and minor revisions annually.

OPERATIONS AND MAINTENANCE ACTIVITIES

Preventative maintenance is a key component in the proper operation of the sewer collection system. The City schedules approximately 30 percent of the sewer collection system for cleaning annually. Maintenance equipment includes a truck-mounted hydraulic sewer cleaner and closed circuit television (CCTV) inspection equipment. Increased maintenance priorities are given to those areas that have demonstrated an ability to potentially experience operational difficulties. The City schedules regular maintenance of certain sewer lines with a higher potential for blockages (e.g., locations with a reduced slope, a history of fats, oils, and grease [FOG] or root problems, customer complaints, odor issues) on a more frequent basis. There are currently 19 segments cleaned on a quarterly basis with another 5 segments being cleaned annually, for a total of approximately 1.5 miles of pipe on an increased cleaning frequency. Other areas are added to the list as needed — based on field observations, SSO frequency, etc. Once a particular system segment isidentified as a "Hot Spot", a reoccurring work order is developed, and field crews are assigned to perform required maintenance on an increased frequency.

The City continually learns from deficiency events such as SSOs in order to redefine and possibly expand existing maintenance and frequency of service programs. At team meetings, staff regularly discusses "field findings" such as identification of problem areas requiring repair before potential failures, continued maintenance concerns, and development of future individual CIP program elements. Staff add known or suspected problem areas (e.g., frequent SSOs/stoppages, root intrusion, high flows during storm events) to a tracking spreadsheet. Crews also identify manholes that have high flow during off hours that may indicate inflow and infiltration (I&I).

The City is in the process of converting its entire maintenance system to new work order and mapping software (Nexgen). In the interim, maintenance activities are tracked through a combination of the old work order and new work order systems. All maintenance activities are documented in the new software. Once Nexgen is operational, each asset (e.g., manhole to manhole gravity sewer segments, manholes, lift stations, force mains) will be assigned a unique identifier and all data associated with that asset (e.g., service calls, SSOs, repairs, condition assessment, flows) will be recorded with the assets unique identifier. The City will be able to analyze the performance and cost of each asset over time, which, in turn, will become the basis for maintenance and capital improvement decisions. The City estimates that complete implementation for sewer collection system into Nexgen will occur by 2023.

The City has a goal of conducting CCTV inspections for five miles per year, plus all the segments with a reoccurring work order or where an SSO has recently been observed. All CCTV inspections are conducted to Pipeline Assessment Certification Program (PACP) standards. The City also has a push cable camera system capable of inspecting segments of smaller pipe.

Mechanical elements of the system such as lift stations are checked for operational effectiveness at least two times per week; maintenance records for lift stations are kept at each site and in the Nexgen work order system. Generators at these sites are also tested on a weekly basis. The City is in the process of making improvements at the lift stations to ensure their continued operational reliability:

- Complete rebuild of the Slate Creek lift station by 2024, including wet well, controls, and new Flyght pumps

- Pending future development of the Berriman Ranch housing project, add a new lift station and eliminate the need for the Taylorville lift station
- Schedule emergency generator fuel polishing every two years to prevent bacterial growth in the fuel tank

REHABILITATION AND REPLACEMENT PLAN

Utility system personnel work closely with the Engineering Division to identify and prioritize structural deficiencies within the system as part of the CIP. Segments of pipe at risk of failure are treated with urgency and repaired or replaced either through the deployment of in-house maintenance crews or by external licensed contractors who have extensive experience with the type of system repair that is required. The CIP is re-evaluated as part of the preparation of the City's annual budget with priorities shifting as needed to reflect the urgency of particular system segment rates of deterioration. The City typically plans collection system improvements including manhole and sewer line rehabilitation, lift station upgrades, and improvements need on specific segments annually. The manhole and sewer line rehabilitation projects are mainly intended to reduce and/or eliminate SSO and address I&I issues. Rehabilitation involves slip-lining, cured-in-place lining, and pipe bursting and replacement.

TRAINING

The City implements an SSO training program for first responders that provide training for operation of sewer response equipment (vacuum/jet truck, Ring-O-Matic vacuum, etc.). Standby personnel are required at least 16 hours per year of actual operation of sewer response equipment to increase operational proficiency. Staff are also encouraged to attend trainings, certification seminars, and industry conferences such as those organized by California Water Environment Association (CWEA) on a wide variety of issues, including collection system maintenance and SSO prevention.

EQUIPMENT AND REPLACEMENT PARTS

The City owns two vacuum/jet trucks, a Ring-O-Matic vacuum, lights, pumps, generators, backhoe, Bobcat, dump truck, and miscellaneous service/utility trucks as well as other equipment needed for sewer line repair. The City also has a large inventory of miscellaneous parts that allow crews to handle emergencies. The City maintains a list of contractors and suppliers that are available in emergencies with equipment and personnel. This list is available in the utility system trucks and at the Corporation Yard.

City staff periodically test and rebuild sewer-cleaning equipment (e.g., root cutter, hydro-pressure) to ensure its performance supports field crew effectiveness and productivity.

The equipment on the City's 'initial-response' truck includes traffic control and containment/ cleanup equipment sufficient to respond to a 100 gallon spill. The truck is stocked at all times and a supply list will be kept on the truck for crews to re-stock any time supplies have been used.

DESIGN AND CONSTRUCTION STANDARDS

In May 2016, the City revised its most recent version of the City's Design Standards and Construction Standards and Standard Details, collectively, the "Improvement Standards". The Improvement Standards

apply to, regulate, and guide the design and construction of all public improvements, and set guidelines for certain private improvements within the City.

The Improvement Standards contain inspection and testing methods and acceptance thresholds in order for improvements to achieve acceptance. The Engineering Division has licensed professional engineers and competent construction field inspection staff available to ensure strict adherence to the stated design, construction, and testing standards.

Section 8 of the "Design Standards" and Section 5 of the 'Construction Standards" apply specifically to the design and construction standards for the sewer collection system and reflect a collaborative effort between the Utilities Divisions to ensure competent design and construction of utility infrastructure.

The Design and Construction Standards are posted on the City's website at www.cityofgrassvalley.com.

OVERFLOW EMERGENCY RESPONSE PLAN

The purpose of the Overflow Emergency Response Plan is to convey an orderly, consistent, efficient, and effective response to SSO events.

GOALS

The City's goals in responding to SSOs are to:

- Respond quickly to minimize the volume of the SSO
- Eliminate the cause of the SSO and restore flow
- Contain spilled wastewater to the maximum extent feasible
- Minimize public contact with the spilled wastewater
- Mitigate the impact of the SSO
- Meet the regulatory reporting requirements
- Provide effective public notification when a threat to public health exists
- React to SSO events in a manner that instills confidence in the public that the system operators are protecting public health

NOTIFICATION PROCESS

The processes employed to notify the City staff of an SSO include: observation by the public, receipt of an alarm, or observation by City staff during the normal course of their work. The notification procedures for working hours and after-hours are presented in **Appendix C**.

Public Observation

Public observation is one of the most common ways that the City is notified of blockages and spills. Contact information for reporting sewer spills and backups are available on the City's website: www.cityofgrassvalley.com. The business hours telephone number for reporting sewer problems is (530)

274-4350 although additional City personnel are trained to respond to these emergency calls and make appropriate staff notifications. The after-hours telephone number is (530) 265-7880 (Sheriff Dispatch).

Normal Work Hours Response Protocol

The City's regular working hours for its sewer staff is Monday through Friday from 7:00 a.m. to 3:30 p.m., except holidays. When a report of a sewer spill or backup is made, City staff receives the call, takes the information from the caller, and communicates the information immediately to the field crew who provide prompt emergency response to the site. Management staff also respond to SSO events to ensure protocols and reporting requirements are followed.

After-Hours Response Protocol

Reports from the public are initially received by the Nevada County's Emergency Dispatch Call Center. Once a Dispatcher receives the call and the pertinent information from the caller, the dispatcher communicates the information to the Public Works On-Call Standby Person. Public Works On-Call is staffed at all times outside of those identified as regular working hours. The Dispatcher leaves a message on the City's emergency call line and the message immediately relays to all Public Works On-Call staff member(s).

Receipt of Lift Station and/or Treatment Plant Alarm

If a lift station or treatment plant alarm is received, the appropriate City staff or on-call duty staff is notified via the Wastewater Treatment Plant cellular phones. Treatment plant staff monitor the treatment plants and lift stations via the Supervisory Control and Data Acquisition (SCADA) system.

Staff Observations

City staff conducts periodic inspections of the sewer system facilities as part of their routine maintenance activities. Any issues, concerns, or problems observed with the sewer system facilities are reported to appropriate City personnel who, in turn, respond to potentially emergency situations.

SAFETY

All department first responders are generally responsible for the job site safety and following safety procedures and protocols at all times. In conjunction with the City's National Incident Management System (NIMS) Training, the first employee on site is responsible for all safety concerns and considerations of the site until he/she is relieved of these responsibilities formally by a more senior employee or responding management personnel. It is understood by all department staff that specialized and possibly extraordinary safety precautions must be observed when performing sewer system emergency and routine maintenance work. These safety precaution considerations include not only working with the potential contamination aspects of sewage but also the work unique environment hazards such as active traffic lanes, working with high pressure water such as that generated by a sewer jet, and other specialized and sometime excessively noisy equipment.

During non-regular work hours, it is critical that City personnel responding to a sewer system event become fully compliant and recognize potential safety hazards of sewer system work. All On-Call Primary Responders are trained in proper sewer system maintenance protocols. In such cases, it is appropriate to

take the time to discuss safety issues, consider the order of work, and check safety equipment and make duty assignments according to level and knowledge of assignments before beginning the tasks of the job.

SSO RESPONSE PROCEDURES

Sewer service calls and lift station alarms are considered high-priority events that require immediate response to the reported location of the event to minimize or eliminate any SSOs. Crews must respond to the reporting party, lift station, or site of the problem immediately and visually check for potential sewer stoppages or overflows. The goal of each SSO response is to preserve and protect public health, environment, and property and to restore the affected area to normalcy as soon as possible.

Responding personnel will work to contain and control the discharge to the maximum extent possible. They will establish safe perimeters and control zones with traffic cones, barricades, vehicles, or terrain to ensure that spill material exposure is contained to as small an area as possible and to eliminate a potential expansion of contamination by outside forces such as vehicles or pedestrians. Every effort is made to prevent the discharge of sewage into waterways or conveyances to waterways both above and below ground. Staff also promptly identify cause and effect of the SSO event and/or the need for additional resources (e.g., people, equipment). The SSO Response Procedures are summarized in **Appendix D**.

Dispatch and Initial Assessment of the Situation

- Receive a brief description of the nature of the problem from the person making the report. Fill out the SSO Spill Report Form (**Appendix E**).
- Determine appropriate response measures based on the circumstances and information provided by the caller (e.g., location, weather and traffic conditions, small backup vs. sewage flowing on the ground) and begin the emergency mobilization of manpower, equipment, and resources to the site.
- Verify the existence of an SSO or backup upon arrival at the reported location.
- Call the appropriate Public Works Management personnel (during working hours) or the Police Dispatcher or Public Works/Utility Management staff (after-hours) to request additional Public Works/Utility staff to assist in the SSO response as necessary.
- Take detailed job notes including notification and arrival time(s), conditions, and any other required information for purposes of external formal notification.
- Use the SSO Spill Report Form (**Appendix E**).
- Take photos to document the incident.
- Take the necessary measures to contain and/or mitigate spilled sewage to the maximum extent feasible regardless of whether the SSO or backup is caused by a private lateral or another agency sewer system. City staff is relieved of this duty when representatives of the responsible third party arrive and take control of the site/event. Third party spills are considered as incidents and forms detailing the event are required to be completed.

Restore Flow

- In the event of a sewer system failure event, relieve the stoppage or restore the lift station operation as soon as possible through the use and application of the appropriate equipment.
- If addressing a main blockage, set up downstream of the blockage and hydro-clean or rod upstream from a clear manhole. Attempt to remove the blockage from the system and observe the flow to ensure that the blockage does not recur or transition downstream.
- If the blockage cannot be cleared within 15 minutes of arrival or the sewer requires construction repairs to restore flow, or if the lift station operation cannot be restored within the wet well holding time, initiate expanded containment efforts to the degree practical and/or bypass pumping. If assistance is required, immediately contact the Public Works Director/City Engineer, or designee (all hours) and other required employees.

Initiate Spill Containment Measures

The first responder(s) should attempt to the extent possible to contain as much of the spilled sewage as possible using the following steps:

- Keep sewage from entering the storm drain system to the maximum extent practicable by blocking storm drain inlets and catch basins or by containing and diverting the sewage away from open channels and other storm drain facilities using sandbags, inflatable dams, plastic mats, etc. Sandbags and a spill containment kit are standard equipment in the On-Call Vehicle at all times.
- Review sewer maps for possible temporary upstream flow diversion through bypassing.
- Pump around the blockage/pipe failure/lift station.
- Dike/dam (or sandbag) the spill by building a temporary berm to collect and control the spilled sewage.
- If overflowing sewage has contacted the storm drain system, attempt to contain the spilled sewage by plugging the nearest unaffected downstream storm drain.
- Modify these methods as needed to accommodate wet weather conditions where the feasibility of containment may be impacted by the quantity of stormwater runoff.
- If containing spilled sewage in storm drain system methods are used, thoroughly clean, vacuum, wash, and disinfect the storm drain system as part of the recovery and clean-up phase.

Clean-up

The recovery and clean-up phase begins immediately after the flow is restored and the spilled sewage has been contained to the extent possible. Depending on the situation, the SSO recovery and clean up may include:

Recovery of Spilled Sewage

To the extent practicable, crews will vacuum up or pump the spilled sewage and return it back into the sewer collection system.

Clean-up and Disinfection

When disinfecting a sewage-contaminated area, crews will take every effort to ensure that the disinfectant or sewage treated with the disinfectant is not discharged to the storm drain system or surface waters. Methods may include blocking storm drain inlets, containing and diverting disinfectant and sewage away from open channels and other storm drain fixtures, and removing the material with vacuum equipment.

The following clean-up and disinfection procedures should be implemented to reduce the potential for human health issues and adverse environmental impacts that are associated with an SSO event. The following procedures described are for dry weather conditions and should be modified as required for wet weather conditions.

Hard Surface Areas

- Collect all sewage solids and sewage-related material either by gloved hand or with the use of various hand tools such as rakes, brooms, and/or shovels.
- Disinfect all areas that were contaminated from the overflow using the disinfectant solution of household bleach diluted 10:1 with water. Apply minimal amounts of the disinfectant solution using a hand sprayer.
- Flush wash any affected area with clean water until the water runs clear. Take all safe and reasonable steps to contain and vacuum up the wastewater.
- Repeat the process as often as necessary until it is obvious that additional cleaning is not required, and the area is safe again.

Landscaped and Unimproved Natural Vegetation

- Collect all signs or examples of sewage solids and sewage-related material either by gloved hand or with the use of various hand tools such as rakes, brooms, and/or shovels.
- Wash down the affected area with clean water until the water runs clear. The flushing volume should be approximately three times the estimated volume of the spill.
- Either contain or vacuum up the wash water so that none is released.
- Allow the area to dry. Repeat the process if additional cleaning is required.
- Do not apply disinfectant solution to landscaped areas or unimproved natural vegetation.

Wet Weather Modifications

Management staff may decide to omit flushing and or disinfection during heavy storm events with heavy runoff where spill area flushing is determined not to be required.

Follow-up Activities

In situations where sewage has reached the storm drain system, crews will vacuum/pump out the catch basin and any other portion of the storm drain system that may have contacted the sewage. All

vacuumed or pumped material collected is deemed contaminated material and must be returned to the sewer collection system.

During nighttime overflow events, a re-inspection should be conducted at first adequate light the following day. The field crew should look for signs of sewage solids and sewage-related material that may warrant additional clean-up activities. Staff shall always err on the side of caution and reinstitute clean-up activities when any doubt exists regarding public safety and overall public health.

Following any re-inspection, the staff will investigate to identify determine the probable cause of the SSO event and to identify proactive action(s) that will minimize or eliminate future potential for an SSO to reoccur. The investigation should include reviewing all relevant data to determine appropriate positive or corrective action(s), the investigation should include:

- Reviewing and completing the SSO Spill Report Form (**Appendix E**)
- Reviewing past maintenance records
- Reviewing available photographs, where applicable
- Conducting a CCTV inspection within the next two (2) business days after an event, where necessary to determine the line condition
- Interviewing staff who responded to the spill

Water Quality Sampling and Analysis

To determine the extent of any impact of an SSO, the City makes every effort to conduct water quality sampling and testing whenever 1,000 gallons or more of untreated sewage enters a surface water. The sampling procedures are summarized below:

- The first responder collects samples as soon as practical after the discovery of the SSO event. Sampling kits are available in the Utility System trucks, standby trucks, and at the Corporation Yard.
- For discharges into flowing water (e.g., rivers, creeks), water quality samples should be collected from as near as possible to 100 feet upstream of the spill, from the spill area, and at 100 feet downstream of the spill at determined intervals. (Coordinate with Nevada County Environmental Health.)
- For discharges into stationary water (e.g., lakes, ponds), water quality samples should be collected from the spill area, at determined sample collection points on either side of the spill. (Coordinate with Nevada County Environmental Health.)
- A certified laboratory will analyze the samples to determine the nature and impact of the discharge. First responders are responsible for collecting the samples and contacting the contract lab to arrange timely pickup of the samples. Information on the contracted laboratory is kept on file at the Corporation Yard. Additional samples will be taken to determine when posting of warning signs can be discontinued. The basic analyses will include *Escherichia coli* (*E. coli*) and ammonia nitrogen.

Public Notification

The public could be at risk and must be warned to avoid all contact with raw sewage and/or contaminated water resulting from an SSO or other hazardous material or chemical release which may cause a risk of illness. The extent of public notification shall be at the direction of the Public Works Director/City Engineer, or designee, in conjunction with Nevada County Environmental Health. The design of these procedures and the extent of public notification is needed to preserve public health are unique to each event. Procedures may include:

- Local agencies and individuals may need to be contacted as soon as possible, depending on the situation, including:
    - Police Department may be called upon to assist with public notification where determined practical.
    - Public Works staff will determine as the situation demands for managing the SSO to close public areas such as parks and to communicate with local residents and/or businesses who may beimpacted by the sewage spill.
    - Posting of warning signs and control of all contaminated areas and or job site(s) with "Yellow Caution Tape" and barricades may be necessary to keep vehicles and pedestrians away from contact with spilled sewage.
- Warning signage, where deemed as a necessary or appropriate means of public notification shall not be removed until such time as directed by the Public Works Director/City Engineer, or designee. In situations where water sampling is required by environmental health authorities, warning sign posting shall remain in place until analytical results demonstrate that the area is safe for human contact and confirmation authority is received from the Nevada County Department of Environmental Health (A sample of the public notification warning sign is included as **Appendix F**).
- Property and creeks that have been contaminated as by an SSO or other hazardous material release should be posted at visible access locations until the risk of contamination has subsided to background levels. The warning signs, once posted, should be checked daily at a minimum to ensure that they are still in place.
- Major spills may warrant broader public notice and possible use of local media. The Public Works Director/City Engineer or designee, in conjunction with Nevada County Environmental Health, will contact local media when deemed appropriate for the preservation of public health. As with any effective use of media as a public communication tool, it is important that there be a single point of contact to disseminate information and in these instances the Public Works Director/City Engineer or designee is the sole responsible person sanctioned for media contact. The Nevada County Department of Environmental Health may also issue media releases when deemed appropriate.

Estimated Volume of Spilled Sewage

Crews will use standardized industry photograph materials or accepted mathematical calculation means to estimate the volume of the spilled sewage. When possible, the volume estimate will be documented

using photos of the SSO site before and during the recovery operation. Initial volume estimates will be recorded using the SSO Spill Report Form. Final spill volumes will be reviewed by the City Engineer.

SSO Categories

The State Water Board established guidelines for classifying and reporting SSOs. Reporting and documentation requirements vary based on the type of SSO. The categories of SSOs are:

- Category 1 – Discharges of sewage, of any volume, that:
    - Reach a drainage channel and/or surface water; or
    - Reach the storm drain system and are not fully captured and returned to the sewer collection system

  Any spill volume not recovered from the storm drain system is considered a discharge to surface water unless the storm drain system discharges to a stormwater infiltration basin or facility.
- Category 2 – Discharges of sewage that:
    - Have a volume of 1,000 gallons or more; and
    - Do not reach a surface water
- Category 3 – Discharges of sewage that:
    - Have a volume equal to or greater than 50 gallons and less than 1,000 gallons; and
    - Do not reach a surface water
- Category 4 – Discharges of sewage that:
    - Have a volume less than 50 gallons; and
    - Do not reach a surface water

Internal SSO Reporting Procedures

Flow charts outlining internal SSO reporting procedures are presented in **Appendix C**.

Category 1 SSOs

The first responder will immediately notify, as practical, the Public Works Director/City Engineer or designee. Where deemed appropriate the Public Works Director/City Engineer or appropriate management staff on-call, or designee will meet with field crew(s) at the SSO site to assess the situation and document the conditions or potential hazards, possibly with photos. The first senior management staff member is responsible for documenting the spill event using the SSO Spill Report Form (**Appendix E**) and turning it in to management staff. A second senior management staff member will review the form for completeness and accuracy and complete CIWQS online form within the time limits required by the State Water Board. In the event of a large overflow or one that has increased exposure to diminishing public health, management staff will notify the Public Works Director/City Engineer who may deem it necessary to notify the City Manager and/or City Council.

Other SSOs

The first senior management staff member will complete the SSO Spill Report Form (**Appendix E**) and turn it in to the appropriate management staff and complete the CIWQS form within the time limits required by the State Water Board. Management staff will review the form for completeness and accuracy and will forward it to the Public Works Director/City Engineer or designee for further action where appropriate.

External SSO Reporting Procedures

CIWQS will be used for reporting SSO information to the State Water Board. For any spills 1,000 gallons or greater, the responsible LRO will notify the California Office of Emergency Services (Cal-OES) at 800-852-7550 within two hours of being notified of a spill and obtain a spill number to reference in other reports. The following information must be provided in the notification to Cal-OES:

- Name and phone number of the person notifying Cal-OES
- Estimated spill volume (gallons)
- Estimated spill rate from the system (gallons per minute)
- Estimated discharge rate (gallons per minute) directly to surface waters or into the storm drain system where it is not fully captured
- Spill incident description including a brief narrative of the spill event and location (address, city, zip code, closest cross streets and/or landmarks)
- Contact information for the person on-scene
- Date and time the City was informed of the spill event
- Name of the sanitary sewer system causing the spill
- Spill cause or suspected cause (if known)
- Amount of spill contained (gallons)
- Name of surface water receiving or potential receiving discharge
- Description of surface water impact and/or potential impact to beneficial uses

Following the initial notification to Cal-OES and until the LRO or designee certifies the spill report to CIWQS, the LRO or designee must provide updates to Cal-OES if there are substantial changes to the following information:

- Estimated spill volume (increase or decrease in gallons initially estimated)
- Estimated discharge volume discharged directly to surface waters or into the storm drain system where it is not fully captured (increase or decrease in gallons initially estimated)
- Additional impact(s) to surface waters and beneficial uses

Additionally, the City must notify the Central Valley Water Board of any spills 50 gallons or greater from its sewer collection system within three business days of being notified of a spill.

The following section details the external reporting response requirements based on the type of SSO. Flow charts outlining external SSO reporting procedures are also presented in **Appendix C**.

For **Category 1 SSOs**, the following reporting requirements apply:

- Within 15 calendar days of the conclusion of SSO response and remediation, the LRO or designee will certify the final report in CIWQS. The LRO or designee can update the certified report as new or changed information becomes available up to 90 days after the spill end date. After 90 days, a request must be made directly to the State Water Board at sanitarysewer@waterboards.ca.gov to amend the report. The updates can be submitted at any time and must be certified.
- In addition, for Category 1 SSOs where 50,000 gallons or more of sewage reach a surface water or enter the storm drain system and is not fully captured and returned to the sewer collection system, the LRO will prepare and certify in CIWQS a *Spill Technical Report* within 45 calendar days after the end date of the SSO. The requirements for the *Spill Technical Report* are detailed in the *SSO Documentation and Record Keeping Requirements* section.

For **Category 2 SSOs**, the LRO or designee must submit a Draft Spill Report to CIWQS within three business days of being notified of the spill event. Within 15 calendar days, the LRO or designee must submit the Certified Spill Report to CIWQS. Upon completion of the Certified Spill Report, a final spill event identification number will be issued by CIWQS. The LRO or designee can update the certified report as new or changed information becomes available up to 90 days after the spill end date. After 90 days, a request must be made directly to the State Water Board at sanitarysewer@waterboards.ca.gov to amend the report. The updates can be submitted at any time and must be certified.

For **Category 3 SSOs**, the LRO or designee must submit a certified report to CIWQS within 30 business days after the end of the calendar month for all Category 3 SSOs that occurred in the calendar month (e.g., all Category 3 spills occurring in the month of February must be reported and certified by March 30). The LRO or designee can update the certified report as new or changed information becomes available up to 90 days after the spill end date. After 90 days, a request must be made directly to the State Water Board at sanitarysewer@waterboards.ca.gov to amend the report. The updates can be submitted at any time and must be certified.

For **Category 4 SSOs**, the LRO or designee must submit a certified report to CIWQS within 15 days after the end of a calendar quarter for all Category 4 SSOs that occurred in that calendar quarter (e.g., all Category 4 spills occurring in the January to March quarter must be reported and certified by April 15). The LRO or designee can update the certified report as new or changed information becomes available up to 90 days after the spill end date. After 90 days, a request must be made directly to the State Water Board at sanitarysewer@waterboards.ca.gov to amend the report. The updates can be submitted at any time and must be certified.

For **privately-owned sanitary sewer systems or privately-owned lateral SSOs**, images and documentation shall be filed for the City's own records. This documentation should specify that the sewage discharge was caused by a private lateral and identify the responsible party (other than the City), if known. Reporting private lateral SSOs to the

If CIWQS is not available, the Utilities Superintendent/City Engineer or designee will email all required information to the Central Valley Water Board office (916-464-4660) in accordance with the time

schedules identified above. In such event, the City will submit the appropriate reports using CIWQS as soon as practical.

SSO Documentation and Recordkeeping Requirements

The first management responder will complete an electronic work order and make any final changes to the SSO Spill Report Form.

Category 1 SSOs

The Draft SSO Spill Report for a **Category 1 SSO** must include, at a minimum, the following information:

- Contact information, including the name and telephone number of the City's contact person to respond to SSO-specific questions
- Spill location name
- Date and time the City was notified of, or self-discovered, the SSO
- Arrival time of first responder
- Estimated SSO start date and time
- Date and time the City notified Cal-OES and the assigned control number
- Description, photographs, and global positioning system (GPS) coordinates of the sewer collection system where the SSO originated
    - If a single SSO event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation
- Estimate total SSO volume exiting the sewer collection system
- Description and photographs of the extent of the SSO and its boundaries
- Did the SSO reach the storm drain system? If yes:
    - Description of the storm drain system transporting the SSO
    - Photographs of the storm drain system entry location(s)
    - Estimate SSO volume fully recovered from the storm drain system
    - Estimated SSO volume remaining in the storm drain system
- Description and photographs of all discharge point(s) into the surface water
- Estimated SSO volume discharged to surface water
- Estimated total SSO volume recovered

The Certified SSO Spill Report for a **Category 1 SSO** must include the information in the Draft SSO Spill Report and, at a minimum, the following information:

- Description of the SSO event destination(s), including GPS coordinates, if available, that represent the full spread and reach of the SSO
- SSO end date and time
- Description of how the SSO volume estimations were calculated, including at a minimum:
    - The methodology, assumptions, and type of data, such as SCADA records, flow monitoring, or other telemetry information, used to estimate the volume of the SSO discharged and the volume of the SSO recovered
    - The methodology, assumptions, and type of data used to estimate the SSO start and end times
- SSO cause(s) (e.g., root intrusion, grease deposit)
- System failure location (e.g., main, lateral, lift station)
- Description of the pipe material and estimated age of the pipe material at the failure location
- Description of the impact of the SSO
- Whether or not the SSO was associated with a storm event
- Description of the SSO response activities including description of the immediate SSO containment and clean-up efforts
- Description of SSO corrective action, including steps planned or taken to reduce, eliminate, and prevent recurrence of the SSO, and a schedule for major milestones for those steps
- SSO response completion date
- Detailed narrative of the investigation and investigation findings of cause of SSO
- Reasons for on-going investigation (if applicable) and the expected completion date
- Name and type of receiving water(s)
- Description of the receiving water(s), including, but not limited to:
    - Impacts on aquatic life
    - Public closure, restricted public access, temporary restricted use, and/or posted health warnings due to SSO
    - Responsible entity for closing/restricting use of receiving water
    - Number of days closed/restricted as a result of the SSO
- Whether or not the SSO was located within 1,000 feet of a municipal water intake or municipal groundwater well
- If water quality samples are collected, identify the sample locations and the parameters for which the samples were analyzed. If no samples were taken, it should be reported as N/A

For SSOs where 50,000 gallons or more reach surface water drainage channel or surface water or enter the storm drain system and is not fully captured and returned to the sewer collection system, the LRO will prepare a *Spill Technical Report*. At a minimum, the *Spill Technical Report* will include the following information:

- Causes and circumstances of the SSO
    - Complete and detailed explanation of how and when the SSO was discovered
    - Photographs illustrating the spill origin, the extent and reach of the spill, storm drain system entrance and exit, receiving water, and post-clean-up site conditions
    - Diagram showing the SSO failure point, appearance point(s), spill flow path, and final destination(s)
    - Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered
    - Detailed description of the cause(s) of the SSO
    - Description of the pipe material and the estimated age of the pipe material at the failure location
    - Description of the impact of the SSO
    - Copies of original field crew records used to document the SSO
    - Historical maintenance records for the failure location
- The City's response to SSO
    - Chronological narrative description of all actions taken by enrollee to terminate the spill
    - Explanation of how the Overflow Emergency Response Plan was implemented to respond to and mitigate the SSO
    - Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed
        - Local regulatory enforcement action taken against an illicit discharge in response to this SSO, as applicable
        - Identifiable system modifications and operations and maintenance program modifications needed to prevent recurrence
        - Necessary modifications to the Overflow Emergency Response Plan to incorporate lessons learned in responding to and mitigating the SSO
- Water Quality Monitoring
    - Description of all water quality sampling activities conducted
    - List of pollutants and parameters monitored, sampled, and analyzed
    - Laboratory results, including laboratory reports
    - Detailed location map illustrating all water quality sampling points
    - Other regulatory agencies receiving sample results (if applicable)

- Evaluation of SSO impact(s), including a description of short- and long-term impact(s) to beneficial uses of the surface water

Category 2 SSO Spill Report

The Draft SSO Spill Report for a **Category 2 SSO** must include, at a minimum, the following information:

- Contact information, including the name and telephone number of the City's contact person to respond to SSO-specific questions
- Spill location name
- Date and time the City was notified of, or self-discovered, the SSO
- Arrival time of first responder
- Estimated SSO start date and time
- Date and time the City notified Cal-OES and the assigned control number
- Description, photographs, and GPS coordinates of the sewer collection system where the SSO originated
    - If a single SSO event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation
- Estimate total SSO volume exiting the sewer collection system
- Description and photographs of the extent of the SSO and its boundaries
- Did the SSO reach the storm drain system? If yes:
    - Description of the storm drain system transporting the SSO
    - Photographs of the storm drain system entry location(s)
    - Estimate SSO volume fully recovered from the storm drain system
    - Estimated SSO volume remaining in the storm drain system
- Estimated total SSO volume recovered

The Certified SSO Spill Report for a **Category 2 SSO** must include the information in the Draft SSO Spill Report and, at a minimum, the following information:

- Description of the SSO event destination(s), including GPS coordinates, if available, that represent the full spread and reach of the SSO
- SSO end date and time
- Description of how the SSO volume estimations were calculated, including at a minimum:

    - The methodology, assumptions, and type of data, such as SCADA records, flow monitoring, or other telemetry information, used to estimate the volume of the SSO discharged and the volume of the SSO recovered
    - The methodology, assumptions, and type of data used to estimate the SSO start and end times
- SSO cause(s) (e.g., root intrusion, grease deposit)
- System failure location (e.g., main, lateral, lift station)
- Description of the pipe/infrastructure material and estimated age of the pipe material at the failure location
- Description of the impact of the SSO
- Whether or not the SSO was associated with a storm event
- Description of the SSO response activities including description of the immediate SSO containment and clean-up efforts
- Description of SSO corrective action, including steps planned or taken to reduce, eliminate, and prevent recurrence of the SSO, and a schedule for major milestones for those steps
- SSO response completion date
- Detailed narrative of the investigation and investigation findings of cause of SSO
- Reasons for on-going investigation (if applicable) and the expected completion date
- Whether or not the SSO was located within 1,000 feet of a municipal water intake or municipal groundwater well

Category 3 SSO Spill Report

The monthly reporting for all **Category 3 SSOs** must include, at a minimum, the following information:

- Contact information, including the name and telephone number of the City's contact person to respond to SSO-specific questions
- Spill location name
- Date and time the City was notified of, or self-discovered, the SSO
- Arrival time of first responder
- Estimated SSO start date and time
- Description, photographs, and GPS coordinates of the sewer collection system where the SSO originated

    - If a single SSO event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation
- Estimate total SSO volume exiting the sewer collection system
- Description and photographs of the extent of the SSO and its boundaries
- Did the SSO reach the storm drain system? If yes:
    - Description of the storm drain system transporting the SSO
    - Photographs of the storm drain system entry location(s)
    - Estimate SSO volume fully recovered from the storm drain system
    - Estimated SSO volume discharged to a groundwater infiltration basin or facility (if applicable)
- Estimated total SSO volume recovered
- Description of the SSO event destination(s), including GPS coordinates, if available, that represent the full spread and reach of the SSO
- SSO end date and time
- Description of how the SSO volume estimations were calculated, including at a minimum:
    - The methodology, assumptions, and type of data, such as SCADA records, flow monitoring, or other telemetry information, used to estimate the volume of the SSO discharged and the volume of the SSO recovered
    - The methodology, assumptions, and type of data used to estimate the SSO start and end times
- SSO cause(s) (e.g., root intrusion, grease deposit)
- System failure location (e.g., main, lateral, lift station)
- Description of the pipe/infrastructure material and estimated age of the pipe material at the failure location
- Description of the impact of the SSO
- Whether or not the SSO was associated with a storm event
- Description of the SSO response activities including description of the immediate SSO containment and clean-up efforts
- Description of SSO corrective action, including steps planned or taken to reduce, eliminate, and prevent recurrence of the SSO, and a schedule for major milestones for those steps
- Detailed narrative of the investigation and investigation findings of cause of SSO

Category 4 SSO Spill Report

The quarterly reporting for all **Category 4 SSOs** must include, at a minimum, the following information:

- Contact information, including the name and telephone number of the City's contact person to respond to SSO-specific questions
- Spill location name
- Date and time the City was notified of, or self-discovered, the SSO
- Description and GPS coordinates for the sewer collection system location where the spill originated
- Did the SSO reach the storm drain system? If yes:
    - Description of the storm drain system transporting the SSO
    - Estimate SSO volume fully recovered from the storm drain system
    - Estimated SSO volume remaining in the storm drain system
- Estimated total SSO volume exiting the sewer collection system
- Spill date and start time
- SSO cause(s) (e.g., root intrusion, grease deposit)
- System failure location (e.g., main, lateral, lift station)
- Description of the SSO response activities including description of the immediate SSO containment and clean-up efforts
- Description of how the SSO volume estimations were calculated, including at a minimum:
    - The methodology, assumptions, and type of data, such as SCADA records, flow monitoring, or other telemetry information, used to estimate the volume of the SSO discharged and the volume of the SSO recovered
    - The methodology, assumptions, and type of data used to estimate the SSO start and end times
- Description of the implemented system and/or operations and maintenance modifications

The Sanitary Sewer System Waste Discharge Requirements (SSS WDR) requires that individual SSO records be maintained by the City for a minimum of five (5) years from the date of the SSO. This period may be extended if requested by the Central Valley Water Board Executive Officer. All records are made available upon request from State or Central Valley Water Board staff.

Post-SSO Event Debriefing and Training

Every SSO event is an opportunity to evaluate the response and reporting procedures. Each overflow event is unique, with its own elements and challenges including volume, cause, location, terrain, and other parameters.

Monthly staff meetings include a detail discussion of past SSO events to discuss what worked and where improvements could be made in responding to and mitigating future SSO events. The meetings will

identify corrective actions that could have prevented most recent SSOs from occurring. Participants will also review reports, investigation results, and status of corrective actions for most recent SSO events.

Training related to the Overflow Emergency Response Plan is scheduled annually. All employees are required to attend, and a log of attendees is kept. Other informal training sessions take place throughout the year as needed, but informal training sessions are not logged. Staff are also encouraged to attend trainings, certification seminars, and industry conferences such as those organized by CWEA on a wide variety of issues, including collection system maintenance, SSO prevention, and SSO emergency response.

FATS, OILS, AND GREASE (FOG) PROGRAM

Section 13.12.040 of the City's Municipal Code prohibits discharges of wastes which contain more than 200 mg/L of fats, oils, and grease (FOG) materials. The City has the authority to require installation of grease interceptors at facilities with the potential to discharge FOG. The City maintains a list of potential FOG-producing facilities and of businesses with grease traps and other grease capturing devices. The City inspects commercial user grease traps to ensure operability and monitors monthly grease hauler reports from grease producing facilities.

Collection system personnel are continually on alert during routine system maintenance activities for the existence of grease, identification of new areas of possible concern, and additional maintenance requirement. A source control activity to identify the point of origination of grease is an ongoing component of the City's maintenance activities.

SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

As previously noted, Utility System personnel work closely with the Engineering Division to identify and prioritize structural deficiencies within the system as part of the CIP. The CIP is updated at least annually with priorities shifting as needed to reflect the urgency of system segment rates of deterioration. The City typically budgets annually for collection system improvements, including manhole and sewer line rehabilitation, lift station upgrades, and improvements need on specific segments. The manhole and sewer line rehabilitation projects are mainly intended to reduce and/or eliminate SSO and I&I issues. Rehabilitation involves slip-lining, cured-in-place lining, and pipe bursting and replacement.

In 2017 Stantec completed a Sewer System Master Plan for Grass Valley. The objectives of the Sewer System Master Plan were to determine the capacity and limitations of the existing collection system and physical modifications, renovations, and additions to the existing sewer collection system necessary to meet current and future needs. Analyses indicated that most sewer lines are adequately sized for the anticipated flows and identified sections of the sewer collection system that needed to be upsized to meet future conditions.

The City uses the Sewer System Master Plan to review collection system capacity, assess needed improvements, and as a general planning tool to ensure adequate wastewater collection and treatment to meet future needs.

MONITORING, MEASURING, AND PLAN MODIFICATION

As noted earlier in the Overflow Emergency Response Plan, the City learns from deficiency events such as SSOs in order to redefine and possibly expand existing maintenance and frequency of service programs. Additionally, at team meetings, staff regularly discuss "field findings" such as needs for repair, and increased attention discussions that are fruitful not only in identifying problem areas before potential failure but also for the continued maintenance as well as development of future individual CIP program elements. During these meetings, staff discuss current maintenance methods and how or if they can be improved.

The City also tracks the effectiveness of the SSMP through performance indicators. The City keeps track of the number of SSOs over the past 12 months, total volume of SSOs, SSOs causes (roots, grease, debris, etc.), and miles of sewer lines evaluated using CCTV. Maintenance activities such as ratio of planned sewer cleaning to unplanned sewer cleaning and the backlog of repair, rehabilitation, and replacement projects are also closely monitored to inform any needed SSMP modifications. Based on this information, the Utilities Director, in collaboration with the Engineering Department, will assess and update the SSMP as appropriately.

SSMP AUDITS

The City plans to complete a review of the SSMP every three years or more often if deficiencies are noticed. The audit will evaluate the SSMP effectiveness and identify any deficiencies and steps to correct them. Audit reports will be prepared and kept on file.

COMMUNICATION PROGRAM

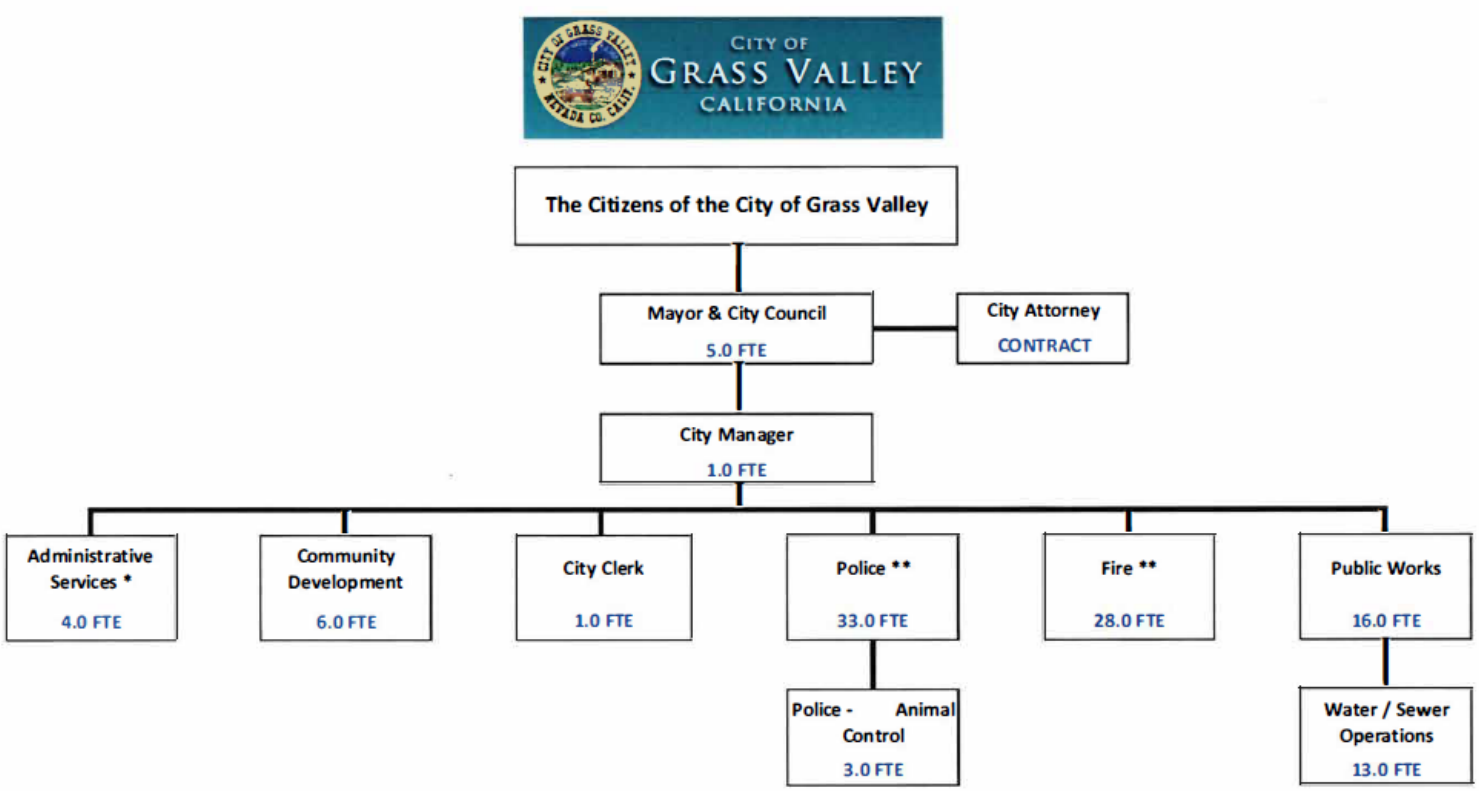
The City regularly updates its website with information about City activities as an effective method for providing alerts and news to the public. The main page of the website provides important announcements, public hearings notices, links to agendas and minutes for City Council meetings, and other key information for City residents. The SSMP is certified by the City Council during a public hearing. The SSMP will be updated and re-certified by City Council every five years, or more frequently, depending on the required updates.

The City does not have any tributary or satellite collection systems; there is no need to establish communication protocols for any such agencies.

APPENDICES

APPENDIX A

Public Works Department Organization Chart



Total Full Time Equivalent Positions Funded - FY 2022-23: **110.0 FTE**

Frozen / De-Funded Positions (not included in above chart): **0.0 FTE**

*** Contracted Positions / Functions - Police:**
- Information Technology Operations

**** Contracted Functions - Police / Fire:**
- Dispatching Services
- Includes Nevada City Contracted Services Provided by City of Grass Valley

APPENDIX B

Emergency Contact Numbers

EMERGENCY CONTACT NUMBERS

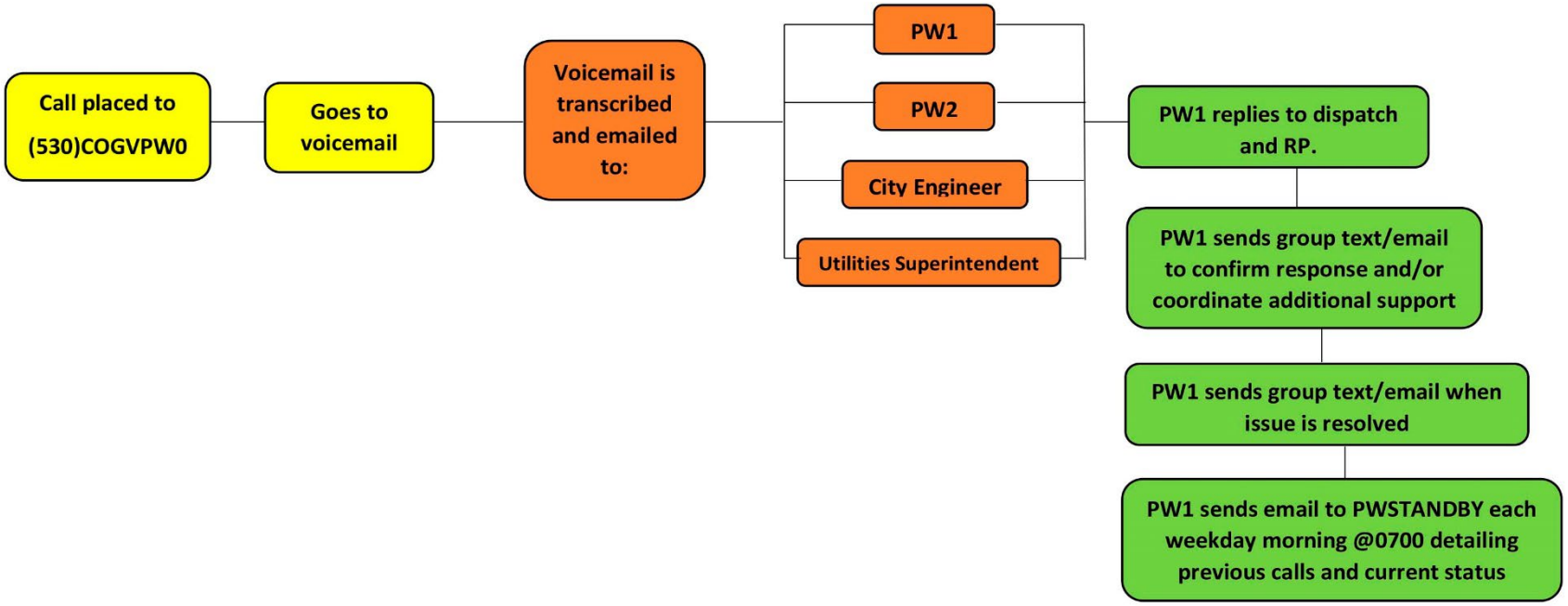
Emergency	911
Sheriff Dispatch	530-265-7880
Fire Department	911
Integral Networks	916-626-4000
Nevada Irrigation District	530-273-6185
	530-273-3346 (after hours)
Ferguson/Groeniger	916-455-3333
KNCO	530-272-3424
Beekeeper Hotline	530-675-2924
Robinson Enterprises	530-265-5844
Grey Electric	530-273-0686
Mr. Rooter Plumbing	530-802-2407
Contractors	
C&D	530-265-6938
Hansen Brothers	530-273-3381 (office)
	530-913-3935 (Jeff Hansen)
Rentals	
Rain for Rent	530-662-1024
United Rentals	530-743-8989
Pump Trucks	
Navo & Sons	530-273-2964
Tall Boots	530-274-78-67
Urke	530-274-3902
Fuel Trucks	
JH Petroleum	530-273-6925 (office)
	530-432-1791 (Dave Knappen)

530-320-4432 (Dean Southerland)

APPENDIX C

City of Grass Valley Standby Call Flow Chart

City of Grass Valley Standby Call Flow Chart



APPENDIX D

Sewer Backup Prevention & Response

APPENDIX E

Sanitary System Overflow Initial Assessment Form

APPENDIX F

Example Spill Warning Sign


WARNING
SEWAGE POLLUTED WATER
AVOID CONTACT UNTIL THIS SIGN HAS BEEN REMOVED
For further information regarding this incident call
The City of Grass Valley Public Works (530) 274-4350
For information Regarding Health Concerns call
Nevada County Environmental Health Dept. (530) 265-1222

APPENDIX G

Instructions for Handling Sewer and Flooding Losses