

City Council Staff Report

September 16, 2015

Applicant: Public
Works Director
Prepared by: Scott
Bird/Gary Calder
Public Hearing: No

REQUEST

Consideration of a Resolution for approval of the Mapleton City Sanitary Sewer Management Plan (SSMP).

BACKGROUND AND PROJECT DESCRIPTION

The attached document (SSMP) is a part of Utah Sanitary Management Program of which Mapleton City is a permittee. The SSMP was developed using a State's Model of the SSMP in conjunction with the Rural Water Association of Utah and is similar to Spanish Fork City's SSMP. The SSMP is used by State to encourage improved management of public sanitary sewer collection systems.

Attached Document:

Mapleton City Sanitary Sewer Management Plan

RECOMMENATION

Approve the Resolution.

Mapleton City
Sanitary Sewer Management Plan

Submitted to:

State of Utah

Department of Environmental Quality

Division of Water Quality

Submitted by:

Mapleton City Engineering/Public Works Department

September 2015

Table of Contents

Chapter 1 Sanitary Sewer Management Plan.....	1
1.1 Introduction.....	1
1.2 Definitions.....	1
1.3 General SSO Requirements.....	3
1.4 SSO Reporting Requirements.....	4
1.5 Sewer Use Ordinance.....	4
Chapter 2 SSMP – General Information.....	6
2.1 Description of Roles and Responsibilities.....	6
2.2 City Engineer/Public Works Director.....	6
2.3 Operations Director.....	7
2.3 Superintendent.....	7
2.4 Organization Chart.....	8
Chapter 3 Operations and Maintenance.....	9
3.0 Operator Training.....	9
3.1 System Mapping.....	10
3.2 System Cleaning.....	10
3.3 System CCTV Inspection.....	10
3.4 Pump Station/Pressure Line Inspection.....	11
3.5 Manhole Inspection.....	11
3.6 Defect Reporting.....	12
3.7 Collection System Damage.....	12
3.7.1 Damage Identification.....	12

Chapter 3 Continued.....	13
3.8 Damage Response Action.....	13
3.8.1 Stable Damage.....	14
3.8.2 Unstable Damage.....	14
3.8.3 Immediate Damage.....	15
Chapter 4 Sewer Design Standards.....	16
Chapter 5 Sanitary Sewer Overflow Action Plan.....	17
5.1 Response Activities.....	18
5.2 General Notification Procedure.....	19
5.3 Agency Notification Requirements.....	19
5.4 Public Notification.....	19
5.5 Overflow Cleanup.....	20
5.6 Corrective Action.....	20
Chapter 6 Log of Contacts with Other Agencies/People.....	21
Chapter 7 Grease, Oil and Sand Management Program.....	22
7.1 Regulatory Authority.....	22
7.2 Program Implementation.....	22
7.2.1 Evaluation.....	23
7.2.2 Implementation.....	23
7.3 List of Acceptable Entities That Recycle Oil and Grease.....	26
Chapter 8 System Evaluation and Capacity Assurance Plan.....	27
8.1 Initial Capacity Evaluation.....	27
8.2 Flow Monitoring.....	29
8.3 Surcharge Flow Analysis.....	29
8.3.1 Flow Reduction Evaluation.....	29

Chapter 8 Continued	30
8.3.2 Foreign Objects or Obstructions.....	30
8.3.3 Allowable Surcharging.....	30
8.3.4 Revised System Modeling	30
8.4 Re-evaluation Modeling and Analysis.....	30
8.5 Capacity Increase Evaluation and Implementation.....	31
8.6 System Improvement Prioritization.....	32
8.6.1 High Priority Projects.....	32
8.6.2 Medium Priority Projects.....	32
8.6.3 Low Priority Projects.....	32
8.7 Capital Improvement Plan.....	32
Chapter 9 SSMP Monitoring and Measurement Plan	33
9.1 Records Maintenance.....	33
9.2 Operations Records.....	33
9.3 Performance Measurement (Internal Audit).....	34
9.4 SSMP Updates.....	34
9.5 SSO Evaluation and Analysis.....	34
9.6 Public Communications and Outreach.....	35
Chapter 10 Sanitary Sewer System Mapping	36
Chapter 11 Basement Backup Program	37
11.1 Basement Backup Response.....	37
11.2 Backup Prevention Design Standard.....	38
11.3 Reference Regulatory Documents.....	38
11.4 Mapleton City Policy.....	38

Chapter 12 No-Fault Sewage Backup Claims Program.....39

12.1 Cleanup of Real and Personal Property.....39

12.2 Establishment of Cleanup Criteria.....40

12.3 Application – Time Limitations.....40

12.4 Qualification for Assistance.....40

12.5 Reduction in Assistance.....41

12.6 Payment Does Not Imply Liability.....42

12.7 Budget Expenditures.....42

12.8 Claims from Other Government Agencies.....42

Appendix.....43

Mapleton City Engineering/Public Works Defect Report Form.....44

Chapter 1

Sanitary Sewer Management Plan

1.1 Introduction

Mapleton City was established in Utah under the Utah State Code. Mapleton City was established in 1901 and incorporated in 1948 and provides sewage collection and currently owns 23% of the Spanish Fork City Treatment Plant that provide sewage treatment to the residents of the Mapleton City. This Sanitary Sewer Management Plan (SSMP) manual has been established to provide a plan and schedule to properly manage, operate, and maintain all parts of the sewer collection system to reduce and prevent SSOs (Sanitary Sewer Overflow), as well as minimize impacts of any SSOs that occur. Mapleton City recognizes the responsibility it has to operate the sewer system in an environmentally and fiscally responsible manner. As such, this manual will cover aspects of the collection system program necessary to provide such an operation. This manual may refer to other programs or ordinances and by reference may incorporate these programs into this manual.

1.2 Definitions

The following definitions are to be used in conjunction with those found in Utah Administrative Code R317. The following terms have the meaning as set forth:

- (1) "BMP" means "best management practice".
- (2) "CCTV" means "closed circuit television.
- (3) "CIP" means a "Capital Improvement Plan".
- (4) "DWQ" means "the Utah Division of Water Quality".
- (5) "FOG" means "fats, oils and grease". This is also referred to as a Grease Oil and Sand Program (GOSI).

(6) "I/I" means "infiltration and inflow".

(7) "Permittee" means a federal or state agency, municipality, county, district, and other political subdivision of the state that owns or operates a sewer collection system or who is in direct responsible charge for operation and maintenance of the sewer collection system. When two separate federal or state agency, municipality, county, district, and other political subdivision of the state are interconnected, each shall be considered a separate Permittee.

(8) "SECAP" means "System Evaluation and Capacity Assurance Plan".

(9) "Sewer Collection System" means a system for the collection and conveyance of wastewaters or sewage from domestic, industrial and commercial sources. The Sewer Collection System does not include sewer laterals under the ownership and control of an owner of real property, private sewer systems owned and operated by an owner of real property, and systems that collect and convey stormwater exclusively.

(10) "SORP" means "Sewer Overflow Response Plan"

(11) "SSMP" means "Sewer System Management Plan".

(12) "SSO" means "Sanitary Sewer Overflow", the escape of wastewater or pollutants from, or beyond the intended or designed containment of a sewer collection system.

(13) "Class 1 SSO" (Significant SSO) means a SSO or backup that is not caused by a private lateral obstruction or problem that:

(a) affects more than five private structures;

(b) affects one or more public, commercial or industrial structure(s);

(c) may result in a public health risk to the general public;

(d) has a spill volume that exceeds 5,000 gallons, excluding those in single private structures; or

(e) discharges to Waters of the State of Utah.

(14) "Class 2 SSO" (Non Significant SSO) means a SSO or backup that is not caused by a private lateral obstruction or problem that does not meet the Class 1 SSO criteria.

(15) "USMP" means the "Utah Sewer Management Program".

1.3 General SSO Requirements

The following general requirements for SSO's are stipulated in R317-801 and are included here as general information.

1) The permittee shall take all feasible steps to eliminate SSOs to include:

(a) Properly managing, operating, and maintaining all parts of the sewer collection system;

(b) training system operators;

(c) allocating adequate resources for the operation, maintenance, and repair of its sewer collection system, by establishing a proper rate structure, accounting mechanisms, and auditing procedures to ensure an adequate measure of revenues and expenditures in accordance with generally acceptable accounting practices; and,

(d) providing adequate capacity to convey base flows and peak flows, including flows related to normal wet weather events. Capacity shall meet or exceed the design criteria of R317-3.

(2) SSOs shall be reported in accordance with the requirements below.

(3) When an SSO occurs, the permittee shall take all feasible steps to:

(a) control, contain, or limit the volume of untreated or partially treated wastewater discharged;

(b) terminate the discharge;

(c) recover as much of the wastewater discharged as possible for proper disposal, including any wash down water; and,

(d) mitigate the impacts of the SSO.

1.4 SSO Reporting Requirements

R317-801 stipulates when and how SSO's are reported. Following are those reporting requirements as of 06/21/2012.

SSO REPORTING. SSOs shall be reported as follows:

(1) A Class 1 SSO shall be reported orally within 24 hrs and with a written report submitted to the DWQ within five calendar days. Class 1 SSO's shall be included in the annual USMP report.

(2) Class 2 SSOs shall be reported on an annual basis in the USMP annual report.

ANNUAL REPORT. A permittee shall submit to DWQ a USMP annual operating report covering information for the previous calendar year by April 15 of the following year.

1.5 Sewer Use Ordinance

Mapleton City has a sewer use ordinance, Title 14-Sewer Regulations that has been adopted by the governing body. This ordinance contains the following items as stipulated by Utah State Code R317-801:

1. Prohibition on unauthorized discharges,
2. Requirement that sewers be constructed and maintained in accordance with R317-3,
3. Ensures access or easements for maintenance, inspections and repairs,
4. Has the ability to limit debris which obstruct or inhibit the flow in sewers such as foreign objects or grease and oil,
5. Allows for the inspection of industrial users, and
6. Provides for enforcement of for ordinance or rules violations.

The following elements are included in this SSMP:

- General Information
- Operations and Maintenance Program
- Sewer Design Standards
- Sanitary Sewer Overflow Response Plan
- Grease, Oil and Sand Interceptor Management Program
- System Evaluation and Capacity Assurance Plan
- SSMP Monitoring and Measurement Plan
- Sewer System Mapping Program
- Basement Backup Program
- No Fault Sewage Backup Claims Program

This program is intended to be a guidance document and is not intended to be part of a regulatory requirement. As such, failure to strictly comply with documentation requirements is, in and of themselves, not a failure of the program's effectiveness. Documentation failures are intended to be identified during system self-audits and will be addressed as training opportunities. Significant system failures will be followed up with corrective action plans. This corrective action process will be implemented by all individuals involved in the SSMP program. Not all Mapleton City employees will necessarily be involved in the collection system operations. As such, not all employees will receive program training. Finally, although not a part of this SSMP program, Mapleton City is an active participant in the Blue Stakes of Utah Utility Notification system. This system, regulated under title 54-8A of the Utah State Code, stipulates utility notification of all underground operators when excavation takes place. The intent of this regulation is to minimize damage to underground facilities. Mapleton City has a responsibility to mark their underground sewer facilities when notified an excavation is going to take place. Participation in the Blue Stakes program further enhances the protection of the collection system and reduces SSO's.

Chapter 2

SSMP – General Information

This Sanitary Sewer Management Plan was adopted by Mapleton City Council on _____.

The responsible representative(s), position and phone number for Mapleton City with regard to this SSMP is/are

<u>Mayor Brian Wall</u>	<u>801-489-5655</u>
<u>City Administrator Cory Branch</u>	<u>801-806-9104</u>
<u>City Engineer/Public Works Director Gary Calder</u>	<u>801-489-6253</u>
<u>Public Works Operations Director Scott Bird</u>	<u>801-489-6253</u>
<u>Public Works Superintendent Brad Roundy</u>	<u>801-489-6253</u>

2.1 Description of Roles and Responsibilities

The following positions have the described responsibility for implementation and management of the specific measures as described in the SSMP.

2.2 City Engineer/Public Works Director

This individual is responsible for overall management of the sanitary sewer collection system. Responsibilities include working with governance to assure sufficient budget is allocated to implement the SSMP, maintenance of the SSMP documentation, development of a capital improvement program and general supervision of all staff.

This individual is responsible for the development and maintenance of collection system design standards, maintenance of collection system mapping and maintenance of the SECAP program.

2.3 Operations Director

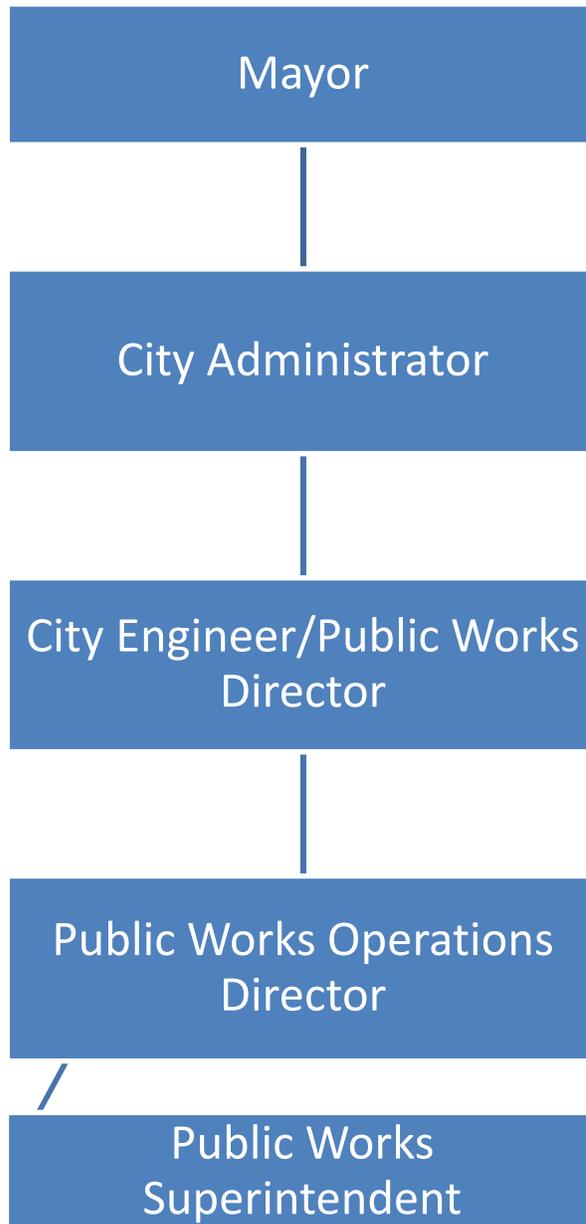
This individual is responsible for oversight of the sanitary sewer collection system, This includes maintenance activities, compliance with SORP requirements, and monitoring and measurement reporting requirements.

2.4 Superintendent

This individual is responsible for daily implementation of the SSMP. This includes maintenance activities, compliance with SORP requirements, and monitoring and measurement reporting requirements.

2.4 Organization Chart

Below is the organization chart associated with the SSMP:



Chapter 3

Operations and Maintenance Program

Mapleton City has established this sanitary sewer system operations and maintenance program to ensure proper system operations, to minimize any basement backups or SSOs, and to provide for replacement, refurbishment, or repair of damaged or deteriorated piping systems. The combined maintenance program should insure that the environment and health of the public are protected at a reasonable cost for the end users. To this end, the following areas are described and included in this maintenance program.

- System Mapping
- System Cleaning
- System CCTV Inspection
- Pump Station/Pressure Lines Inspection
- Manhole Inspection
- Defect Reporting
- Damage Assessment

3.0 Operator Training

Mapleton City will require the following levels of training and certification of the operators of the sanitary sewer collection system

- 1) Operations Director – Collection III or higher Wastewater Operator unrestricted DRC.
- 2) Superintendent – Collection III or higher Wastewater Operator unrestricted DRC.
- 3) Operator – Collection II or higher Wastewater Operator unrestricted DRC.
- 4) New Hire Operator – Required to obtain Collection II or higher unrestricted within 2 years of date of hire.

Mapleton City will pay for and provide reasonable opportunities to acquire the appropriate training and certifications for each job title.

3.1 System Mapping

An up to date map is essential for effective system operations. Mapleton City has assigned the mapping responsibility to the City Engineer or designee, who will prepare and maintain current mapping for the entire sanitary sewer system. Mapping may be maintained on either paper or in a graphical information system (GIS) or a combination of both. Current mapping is available at the following location(s):

Mapleton City Engineering/Public Works

1405 West 1600 North

Mapleton, UT 84664

Should any employee identify an error in the mapping, they should document the error on a defect report and give it to the City Engineer or designee.

3.2 System Cleaning

Sanitary sewer system cleaning is accomplished through various means and methods. Mapleton City has established a goal to clean the entire system every four years. Based on experience over the past 20 years, this frequency significantly reduces the number of basement backups, controls grease problems and flushes any bellies in the system. In addition Mapleton City has a listing of identified hot spots which are maintained at a higher frequency. Systems which may have roots are mechanically rodded or hydraulically cut out and areas with food services are hydraulically flushed with a high pressure jet truck. The following methods are employed to provide system cleaning:

- 1) Mapleton City Hydraulic Cleaning
- 2) Contractor Hydraulic Cleaning
- 3) Chemical FOG Control

Cleaning records are maintained at Mapleton City Engineering/Public Works, 1405 W. 1600 N. Contractors are required to provide cleaning records associated with their work. Cleaning history may also be entered into the GIS; however, this is not always necessary. Should the

cleaning process identify a serious defect, the problem should be reported on a Defect Report Form. The City Engineer or designee should be given the defect reports for further action. The defect report should be specific as to location and type of problem. A copy of the Defect Report Form is included at the end of this SSMP. A summary of cleaning activities shall be prepared annually by the Public Works Director or designee. This summary will normally be presented to Mapleton City Council.

3.3 System CCTV Inspection

Closed Circuit TV inspections of the sanitary sewer system are used to assess pipe condition and identify problems or possible future failures which need current attention. The CCTV process also identifies the piping condition to allow for replacement prior to failure. Generally Mapleton City will conduct CCTV inspection with a contractor. Inspections of the system will occur every 5 to 10 years. This inspection frequency is based on the pipe aging process. As such, once the system has been inspected completely, change usually occurs gradually. CCTV will also be employed when a system's operation or capacity is questioned or when an SSO occurs. Any defects identified during the CCTV process should be reported on a Defect Report Form and the form should be given to the City Engineer or designee, for possible repairs. Documentation of CCTV activities will be maintained at Mapleton City Public Works. When contractors are employed to inspect the sanitary sewer system they will be required to submit records for their work. The City Engineer or designee will prepare an annual summary of CCTV completed for that calendar year.

3.4 Pump Station/Pressure Line Inspection

Staff inspects each pump station at least weekly for correct operations. Included in this inspection is a visual observation of the pressure line alignment in order to insure there are no leaks. Pump stations are also monitored via remote monitoring. Operators inspecting the pump stations will complete the included Pump Station Inspection Form. Should a problem be encountered that cannot be corrected during the inspection, a Defect Report Form should be completed and the form given to the City Engineer or designee. If the defect has the potential to cause a sanitary sewer overflow, immediate action should be taken to insure no overflow occurs. During the inspection of the pressure sewer alignment, operators should be looking for unusual puddles. If a potential leak is identified a Defect Report should be completed and given to the City Engineer or designee, for further action. An evaluation will be made to determine if there is an actual leak and appropriate action taken.

3.5 Manhole Inspection

Mapleton City schedules inspections of the sanitary sewer manholes (MH) every four years in conjunction with the cleaning schedule. The MH inspection involves the identification of foreign objects and surcharging that may be present. Crews inspecting the MH will be given maps by the City Engineer who will monitor the progress and completeness of the inspection process. When a potential defect is identified the manhole should be flagged. Flagged manholes should be checked by an operator within several days to determine further action. If, during the inspection process, the inspection crew believes a problem is imminent, they should immediately cease inspecting and inform the City Engineer or designee, of the problem. A cleaning crew should be dispatched immediately to ensure correct system operations. All inspection records should be retained for documentation of work performed.

3.6 Defect Reporting

Defect Reports (see form in Appendix) generated through the cleaning, CCTV inspection, pump station inspection or manhole inspection programs will be prioritized for correction by the City Engineer or designee,. Any defects which have the potential for catastrophic failure and thus create a sanitary sewer overflow should be evaluated immediately and discussed with the Public Works Director for repair. Repair methods may include:

- Spot Excavation Repairs
- Spot Band Repairs
- Segment Excavation Replacements
- Segment Lining
- Manhole Rehabilitation

When a defect is not flagged for immediate repair, it should be considered for placement on the “hot spot” list. This will allow for vigilant maintenance to ensure failure and a subsequent sanitary sewer overflow do not take place. Defect reports should be used in the Budget process to determine what financial allocation should be made in the next Budget year. The responsible person should include outstanding defects in the annual report.

3.7 Collection System Damage

Collection damage may occur as a result of multiple factors, some identified as a result of inspection activities and some identified as a result of damage by third parties such as contractors.

3.7.1 Damage Identification

The identification of system damage which may result in an SSO or basement backup is important to prevent environmental, public health, or economic harm. Identification of damage may be from either internal activities or external activities.

Internal activities which may result in the identification of damage include the following:

- 1) Collections Maintenance Activities
- 2) CCTV Inspection Activities
- 3) Manhole Inspection Activities

These three activities are discussed in this Maintenance Program and the identification of damage will result in the generation of a Defect Report. Generally, damage identification is an iterative and continuous process.

External activities which identify damages include:

- 1) Contractor Notification of Damage
- 2) Directional Drilling Notification of Damage
- 3) Public Damage Complaints

All three of these notifications generally require immediate response. Staff should respond and evaluate the seriousness of the damage and the effect on the environment. Damages which include a release to the environment should be handled in accordance with the SORP. Damages which cause a basement backup should trigger the

Basement Backup program. Damages which remain in the trench should be de minimis and do not require more action than the repair of the damage.

Whatever the cause of collection system damage, the response should be expeditious to prevent environmental or economic harm. District staff should consider all damages an emergency until it is shown by inspection to be a lower priority.

3.8 Damage Response Actions

When damages occur in the collection system, the following actions help define the path staff should take. These action plans are not inclusive of all options available but are indicative of the types of response that may be taken.

3.8.1 Stable Damage

Inspection activities may show a system damage which has been there for an extended period of time. Such damage may not require immediate action but may be postponed for a period of time. When stable damage is identified and not acted upon immediately, a defect report should be prepared. If such a defect is identified and repaired immediately, a defect report is not needed.

An example of stable damage could be a major crack in a pipeline or a severely misaligned lateral connection where infiltration is occurring.

3.8.2 Unstable Damage

Unstable damage is damage which has a high likely hood that failure will occur in the near future. Such damage may be a broken pipe with exposed soil or a line which has complete crown corrosion. In these cases, action should be taken as soon as there is a time, a contractor, materials and other necessary resources available. When such unstable damage is identified, if possible, consideration should be given to trenchless repairs which may be able to be completed quicker than standard excavation. Immediately after identification the Manager should be contacted to review and take care of budget considerations.

3.8.3 Immediate Damage

When a contractor or others damage a collection line such that the line is no longer capable of functioning as a sewer, this immediate damage must be handled expeditiously. Such damage allows untreated wastewater to pool in the excavation site, spill into the environment or possibly backup into a basement. Under such conditions priority should be given to an immediate repair. Since excavation damage may be a result of contractor negligence or it could be a failure of Mapleton City to adequately protect the line by appropriately following the Damages to Underground Utilities Statute 54-8A, priority should be given to effecting a repair and not to determining the eventual responsible party.

As can be determined from the above action plans, priority should always be preventing SSO's and attendant environmental damage, to prevent basement backups and financial impacts, and to prevent public health issues.

Chapter 4

Sewer Design Standards

Included in this section are the sanitary sewer design standards for Mapleton City. These design standards are intended to be used in conjunction with Utah Administrative Code R317-3. Where a conflict exists between these two standards, the Administrative Code shall prevail.

<http://www.rules.utah.gov/publicat/code/r317/r317-003.htm>

Mapleton City has adopted the most current edition of the APWA Standard Drawings and Specifications and Mapleton City Amendment to APWA Standard Drawings and Specifications

<http://www.mapleton.org/departments/public-works/>

Chapter 5

Sanitary Sewer Overflow Action Plan

Whenever sanitary sewage leave the confines of the piping system, immediate action is necessary to prevent environmental, public health or financial damage from occurring. In addition, quick action is normally needed to mitigate damage which may have already occurred. For the purpose of this section, the following are part of the emergency action plan.

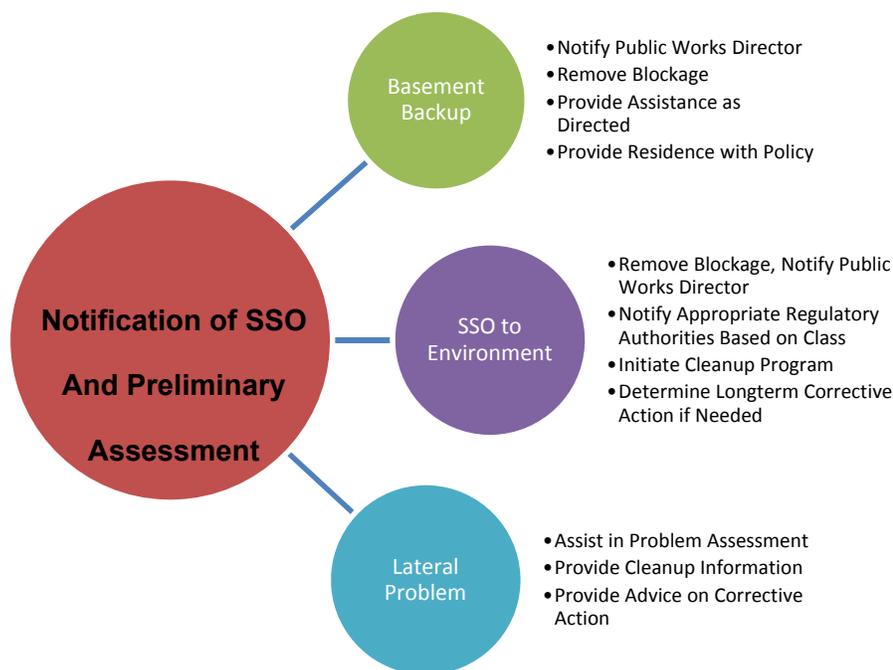
- 1) Basement backups
- 2) Sanitary sewer overflows
- 3) Sanitary sewer breaks which remain in the trench
- 4) Sewer lateral backups

All of the above conditions are likely to cause some damage. Each should be treated as an emergency, and corrective actions taken in accordance with Mapleton City directions. Items 1 & 2 above should be reported immediately based on whether they constitute a Class 1 or Class 2 SSO. As stated in the definition section of the SSMP Introduction, a Class 1 SSO is an overflow which affects more than five private structures; affects a public, commercial or industrial structure; results in a significant public health risk; has a spill volume more than 5,000 gallons; or has reached Waters of the State. All other overflows are Class 2 SSO's. All Class 1 SSO's should be reported immediately. Class 2 SSO's should be documented and reported in the annual SSMP report and included in the Municipal Wastewater Planning Program submitted to the State. Item 3 may be reported to the local health department if, in the opinion of the responsible staff member there is potential for a public health issue. An example of where a public health issue may be present is when an excavator breaks both a sewer and a water line in the same trench. In such cases, the local health department representatives should be contacted and the situation explained. If the health representative requests further action on the part of the Mapleton City, staff should try and comply. If, in the opinion of the responsible staff member, the health department request is unreasonable, The Manager should be immediately notified. Care should always be taken to err on the side of protecting public health over financial considerations.

When a basement backup occurs, the staff member responding should follow the Basement Backup Program procedures. Lateral backups, while the responsibility of the property owner, should also be treated as serious problems. Care should be taken to provide advice to the property owner in such cases, but the property owner is ultimately the decision maker about what actions should be taken.

5.1 Response Activities

There are specific steps that should be followed once a notification is received that an overflow may be occurring. The following figure outlines actions that could be taken when the Mapleton City receives notice that a possible overflow has or is occurring.



5.2 General Notification Procedure

When a Class 1 SSO occurs specific notification requirements are needed. In such cases the following Notification procedure should be followed and documented. Failure to comply with notification requirements is a violation of R317-801.

5.3 Agency Notification Requirements

Both the State of Utah Division of Water Quality and the local health department should be immediately notified when an overflow is occurring. Others that may require notification include local water suppliers, affected property owners and notification may be required to Utah Division of Emergency Response and Remediation if hazardous materials are involved. The initial notification must be given within 24 hours. However, attempts should be made to notify them as soon as possible so they can observe the problem and the extent of the issue while the problem is happening. A notification form is provided to document notification activities. After an SSO has taken place and the cleanup has been done, a written report of the event should be submitted to the State DEQ within five days (unless waived). This report should be specific and should be inclusive of all work completed. If possible the report should also include a description of follow-up actions such as modeling or problem corrections that has or will take place.

5.4 Public Notification

When an SSO occurs and the extent of the overflow is significant and the damage cannot be contained, the public may be notified through proper communication channels. Normally the local health department will coordinate such notification. Should Mapleton City need to provide notification it could include press releases to the local news agencies, publication in an area paper, and leaflets delivered to home owners or citizens in the area of the SSO. Notification should be sufficient to insure that the public health is protected. When and if Federal laws are passed concerning notification requirements, these legal requirements are incorporated by reference in this document. In general, notification requirements should increase as the extent of the overflow increases.

5.5 Overflow Cleanup

When an overflow happens, care should be taken to clean up the environment to the extent feasible based on technology, good science and financial capabilities. Cleanup could include removal of contaminated water and soil saturated with wastewater and toilet paper, disinfection of standing water with environmentally adequate chemicals or partitioning of the affected area from the public until natural soil microbes reduce the hazard. Cleanup is usually specific to the affected area and may differ from season to season. As such, this guide does not include specific details about cleanup. The responsible staff member in conjunction with the State DEQ, the local health department and the owner of real property should direct activities in such a manner that they are all satisfied with the overall outcomes. If, during the cleaning process, the responsible staff member believes the State or the County is requesting excessive actions, the Manager should be contacted.

5.6 Corrective Action

All SSO's should be followed up with an analysis as to cause and possible corrective actions. An SSO which is the result of grease or root plug may be placed on the preventative maintenance list for more frequent cleaning. Serious or repetitive plugging problems may require the reconstruction of the sewer lines. An overflow that results from inadequate capacity should be followed by additional system modeling and either flow reduction or capacity increase. If a significant or unusual weather condition caused flooding which was introduced to the sanitary sewer system incorrectly, the corrective action may include working with other agencies to try and rectify the cross connection from the storm sewer to the sanitary sewer or from home drainage systems and sump pumps. Finally, should a problem be such that it is not anticipated to reoccur, no further action may be needed.

Chapter 6

Log of Contact with Other Agencies/People

Location of SSO: _____

Date of SSO: _____

Agency	Phone Number	Contact Made Yes/No	Time	Remarks
Utah DWQ	801-536-4300 or 801-231-1769			
Local Health Department	801-420-3174 801-851-7521			
Utah DERR	801-536-4123			
Local Police Department	801-489-9668			
Local Fire Agency	801-489-9421			
Applicable Water Agency	801-489-6253			
US EPA Region VIII	Consult with DWQ			

Other Contacts:

Contact Made With	Phone Number	Contact Made Yes/No	Time	Remarks

Chapter 7

Grease, Oil and Sand Management Program

The purpose of this program is to provide for the control and management of grease, oil and sand discharges to the City's collection system. This program will provide a means to reduce interference with the collection system operation and pass through at the treatment plant.

7.1 Regulatory Authority

Regulatory authority to implement this program is found in the Code of Federal Regulations in 40 CFR 403, General Pretreatment Regulations. State authority for the program is given in the Utah Administrative Code R317-8-8, Pretreatment. Local Authority is found in Mapleton City Code Title 14 - Sewer Regulations.

7.2 Program Implementation

This program shall be implemented in such a manner as to minimize the impact on businesses which may be affected by this program. In all cases Mapleton City will maintain a uniform decision making process. Mapleton City shall allow for appeals of program requirements in accordance with the appeal process approved by Mapleton City.

The following steps detail the procedure that Mapleton City personnel shall follow in implementing this program.

7.2.1 Evaluation

Mapleton City staff will evaluate an industrial user (IU) discharge to determine if grease, oil or sand management is required at the following events:

1. Issuance of a construction or remodeling building permit.
2. When the collection line in front of the business is CCTV inspected as part of the sanitary sewer system preventative maintenance program.
3. When a downstream sanitary sewer pipeline plugs due to oil, grease or sand.

No further action will be taken if it is determined that no potential exists for significant enrichment of the wastewater with grease, oil or sand. Enrichment is defined as a discharge with greater volume or concentration of grease, oil or sand than that discharged from a typical residential connection. For oil and grease, the typical residential discharge has less than 100 mg/L of oil and grease for any sample taken. Greater concentrations would be enrichment. Also, a significant buildup of oil and grease in the lateral would indicate enrichment. Sand and dirt is not typically discharged from a residential connection. Any potential for sand or dirt discharge would be enrichment.

7.2.2 Implementation

IU's which are determined to enrich or have the potential to enrich the wastewater with grease, oil, or sand will be required to develop a management plan in accordance with the following tracks.

TRACK 1

This track is available for IU's which exist at the time of program implementation. However, not all existing IU's may be permitted to use it. Determination will be made on a case by case basis. IU's on this track will be permitted to either pay a contractor or Mapleton City to clean the main sewer line from their place of business to the nearest trunk line. A trunk line is any sewer line which has an inside diameter of eighteen inches or larger or has been classified as a trunk line by Mapleton City. Cleaning frequency will be determined by inspections performed by the Mapleton City.

TRACK 2

This track requires the IU to install and maintain a grease, oil and/or sand trap on their premises. Quarterly cleaning reports may be required at the discretion of Mapleton City. Mapleton City shall inspect and test the grease trap on a periodic basis. A fine and inspection fee will be assessed.

Should the testing reveal grease and oil in excess of 100 mg/L, a fine of an for each pound of oil and grease discharged for the past reporting period shall be assessed. The pounds of grease and oil shall be determined by using the following equation:

$$(\text{Total Reporting Period water use in MG})(\text{mg/L O\&G} - 100)(8.34)$$

The IU will also be ordered to return to compliance immediately. Retesting will be done within thirty days if the trap has not been cleaned and a cleaning report submitted. Another inspection and testing fee will be assessed. Should the test results still not

comply with the 100 mg/L oil and grease limit, enforcement will be escalated in accordance with the Mapleton City's Enforcement Response Plan. In addition, an entity which is frequently violating the 100 mg/L limit may be issued a pretreatment permit in order to further regulate the IU

Should the testing reveal TSS in excess of 250 mg/L, a fine of an amount sufficient for each pound of TSS discharged for the past reporting period shall be assessed. The pounds of TSS shall be determined by using the following equation:

$$(\text{Total Reporting Period water use in MG})(\text{mg/L TSS} - 250)(8.34)$$

The IU will also be ordered to return to compliance immediately. Retesting will be done within thirty days if the trap has not been cleaned and a cleaning report submitted. Another inspection and testing fee will be assessed. Should the test results still not comply with the 250 mg/L TSS surcharge limit, the IU will be placed on a continuous inspection, testing and the surcharge schedule for TSS.

By following the steps discussed above, Mapleton City hopes to maintain a collection system free from excessive backups and a treatment plant in compliance with UPDES discharge conditions.

7.3 List of Acceptable Entities That Recycle Oil and Grease

The following list of grease and oil recyclers should be given to all IU's who operate a grease trap. This list may not be all inclusive. Other recyclers may be used if it can be shown that they discharge of the waste appropriately.

Recycler	Phone Number	Address
Renegade Oil	801-973-7912	1141 S. 3200 W, SLC, Utah 84104

Chapter 8

System Evaluation and Capacity Assurance Plan

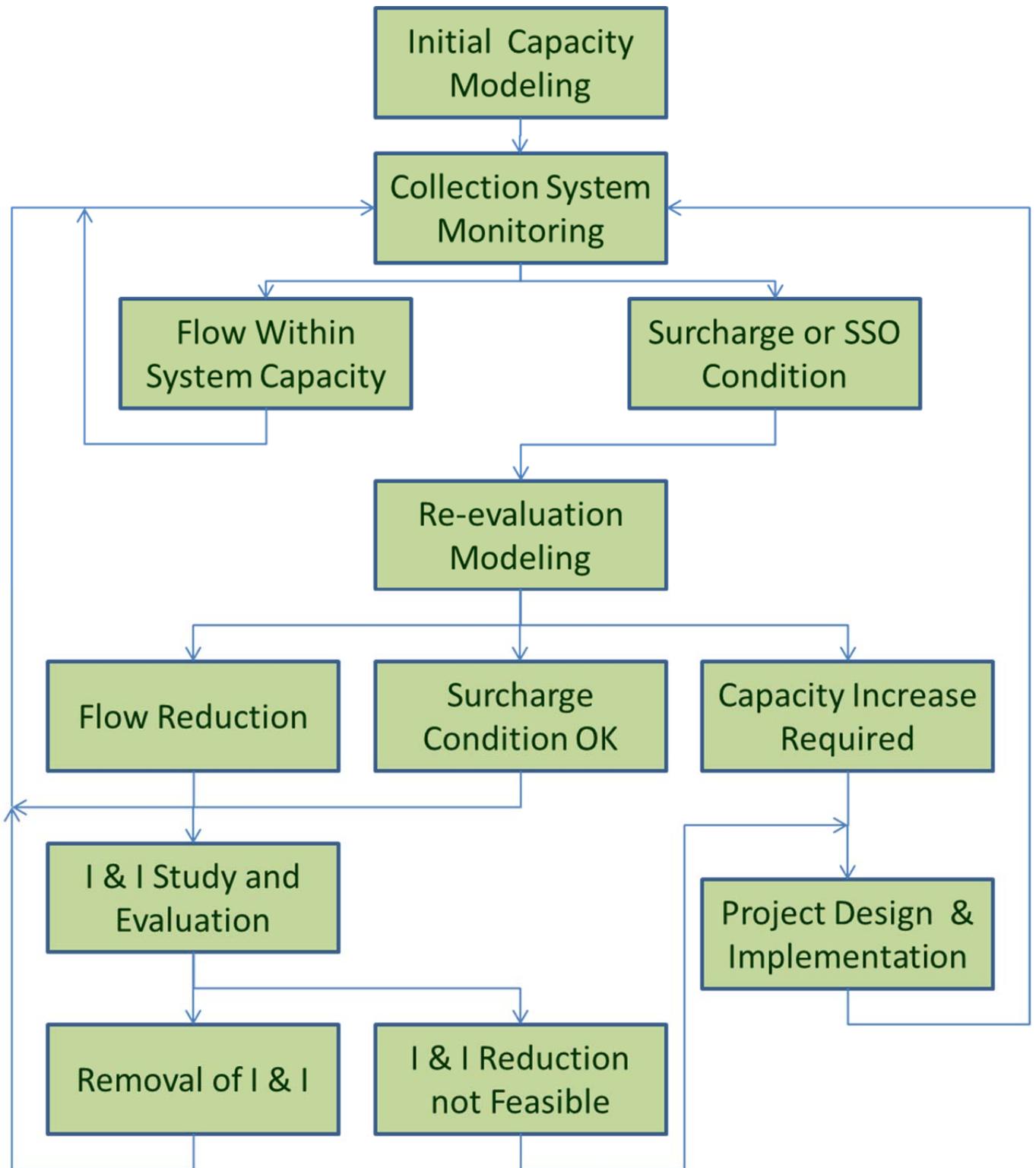
Mapleton City believes that one of the keys to preventing sanitary sewer overflows is to evaluate system capacity and to monitor flows throughout the system in order to ensure that capacities are not exceeded. Should a collection sub-system exceed the capacity of the pipes, the system will be immediately re-evaluated and corrective action taken. The following elements are all part of Mapleton City SECAP program.

- 1) Initial Capacity Modeling and Master Planning
- 2) Flow Monitoring
- 3) Surcharge Flow Analysis
- 4) Re-evaluation Modeling and Analysis
- 5) Flow Reduction Evaluation and Implementation
- 6) Capacity Increase Evaluation and Implementation

The actual implementation process associated with each of the elements above is shown in figure on the next page. This flow chart process forms the backbone of the SECAP.

8.1 Initial Capacity Evaluation

Mapleton City has performed an analysis and modeling of each critical subsystem contained within its collection system. Subsystems are segregated based on the branching of the collection system. Trunk lines and collector lines are evaluated until the system reaches a point where less than 400 residential dwelling unit equivalents (RE) are upstream of that point in the system. The 400 RE point was chosen based on the minimum slope requirements of the State of Utah. An 8-inch pipe constructed on minimum slope will carry the flow from 400 RE based on 3.2 persons per dwelling unit, 75 gpcd and a peaking factor of 4. The RE equivalent is based typical Utah information and assumes the peaking factor will account for a reasonable amount of inflow and infiltration. If an area is known to have, or flow metering identifies, a significant amount of inflow and infiltration, additional evaluation will be needed. In these areas the capacity of an 8-inch pipe system may be significantly reduced below 400 RE.



SECAP Flow Chart

In addition to developing an equivalent flow for a residential unit, consideration should also be given to time of concentration in the collection system. Based on typical diurnal flow patterns, if the transit time in the branch system is less than 2 hours, time of concentration can be ignored.

8.2 Flow Monitoring

Sewer flow monitoring at the outfall metering station is performed by Spanish Fork City in conjunction with Mapleton City Public Works. Mapleton City Public Works will perform portable flow monitoring that will be done periodically to determine inflows that may not be sewer influent.

8.3 Surcharge Flow Analysis

If any collection subsystem is identified as having any of the following problems the system will be evaluated to determine future action. These problems are:

- 1) Sanitary Sewer Overflow to the Environment
- 2) Sanitary Sewer Break Remaining in the Trench
- 3) Basement Backup
- 4) Observed Subsystem Surcharging.

The flow evaluation may result in multiple conclusions, some of which may require further action. Possible conclusions and their further action are listed below. This list is not inclusive nor does it require the specific action detailed. These are given as possible examples and will be used by the [responsible position] to determine correct future action.

8.3.1 Flow Reduction Evaluation

Should excessive flows be identified during the surcharge analysis, the solution may be to proceed with an inflow and infiltration study with the ultimate goal of reducing flows. These flow reductions may be achieved by reconstruction of specific areas, internal spot repairs, removing illegal storm water or sump pump connections from homes or storm water systems, and system grouting. Tools used in flow reduction may include

extensive in line camera inspection, smoke testing, dye testing, and increased inspection or flow monitoring.

8.3.2 Foreign Objects or Obstructions

There are multiple foreign objects which may be found in sewers. These may include objects knocked into sewers during construction, illegally placed in sewer manholes, roots, grease and soaps, bellies in piping systems, etc. Each of these problems should be found during the backup investigation and a plan developed to insure the problem does not reoccur. Types of action may include increased cleaning frequency, spot repairs, greater pretreatment activity, lining of pipes, and other corrective actions which resolve the problem.

8.3.3 Allowable Surcharging

Some piping systems may be able to accept surcharges without creating problems. Such systems may be deep and surcharging occurs below the level of basements or manhole rims, or they may be in areas where there are no connections. In such cases the resolution of the observed surcharge may just be additional monitoring.

8.3.4 Revised System Modeling

Where piping system problems cannot be resolved in a less expensive way, the system may be further modeled to determine upgrade needs. Modeling should include known flow information and future projections. Since the system has been shown to have problems, further modeling should be more conservative in flow projections. Revised modeling should follow the guides given next.

8.4 Re-evaluation Modeling and Analysis

When a subsystem needs demonstrate irresolvable problems by less costly means, the subsystem should be re-modeled and required action determined. Revised modeling may show that flow reduction may still be viable or it may show that the system can allow current surcharge conditions. Most likely, however, the modeling will normally form the basis for construction to enlarge the subsystem capacity. Modeling should be done either by

- 1) Mapleton City staff using commercially available software
- 2) Mapleton City staff using spreadsheet models
- 3) Engineering firms using available software or spreadsheets.

It is important to insure the modeling is comprehensive and includes all the potential flow sources. While the current area zoning and land use planning should be used in the model development, care should be taken to discuss possible changes with appropriate officials. Where possible zoning changes appear likely, the model should be re-run with the revised zoning alternatives. Once a resolution has been selected, the resulting project should be placed on the capital improvement plan (CIP).

8.5 Capacity Increase Evaluation and Implementation

The capacity evaluation should be expedited based on the impact of the problem on the environment and the possible repeat of the overflow/backup/surcharging. Details on prioritization are given in the next section.

Systems requiring additional capacity should be engineered for expansion by qualified staff or engineering consultants. Project design should be based on acceptable engineering standards and should comply with State of Utah regulations found in R317-3. Easements should be obtained, where needed and the design should include an analysis of other utilities in the vicinity. Design review should be done by the applicable regulatory agency, as appropriate. A design report should be prepared for each project. Where appropriate, the subsystem modeling may be substituted for the design report.

Finalized projects should be placed on the CIP.

8.6 System Improvement Prioritization

The priority for improvement should follow the following general guidelines:

8.6.1 High Priority Projects

When there is significant potential for sanitary sewer overflows, or frequent basement backups, the improvement should be considered a high priority and any available budget should be allocated to the project.

8.6.2 Medium Priority Projects

Where the problem is infrequent and the possibility exists that it may not repeat in the near future, the priority for correction is medium. Medium priority projects may be delayed until appropriate budget is available or the priority is adjusted to high priority. Should an SSO or basement backup repeat in the same area, the priority should be immediately revised.

8.6.3 Low Priority Projects

If the observed problem is infrequent, there is possibility that it may not repeat in the near future and the possibility that increased flow in the subsystem is low, the correct priority is low. Low priority projects will be placed in the budget process and evaluated against other needs. These projects will eventually be completed, but the work is not prioritized above plant and equipment needs.

8.7 Capital Improvement Plan

The CIP is part of the Mapleton City's budgeting process to insure sufficient revenue to address identified weaknesses in the sanitary sewer system. Items which have been identified as needing a structural fix are placed on the CIP list and the cost for each estimated. Sources of funding should be identified for all high priority projects so that SSO's or other failures do not re-occur. Forecasts of available funding for medium and low priority projects should be made to facilitate future revenue needs.

Chapter 9

SSMP Monitoring and Measurement Plan

Purpose:

The purpose of this plan is to provide appropriate monitoring and measurement of the effectiveness of the SSMP in its entirety.

9.1 Records Maintenance

Mapleton City intends to maintain appropriate records on operations and maintenance of the sanitary sewer system to validate compliance with this SSMP. However, failure to meet standards set by State DWQ or other regulatory agency during an inspection does not constitute a violation of the SSMP. Rather, deficiencies identified during inspections should be viewed as an opportunity for improvement.

9.2 Operations Records

Operations records that should be maintained include the following:

- Daily cleaning records
- CCTV inspections records
- Manhole inspection records
- Hot spot maintenance list
- Spot repairs
- Major repairs
- System capacity information
- SSO or basement backup records including notification documents to appropriate agencies (call logs, etc.)
- Capital Improvement Plan

Records will be maintained by the Public Works Department in a central location. Records may be maintained either on an electronic record or as a paper record. The extent of the record should be sufficient to demonstrate the activity recorded was completed appropriately.

9.3 Performance Measurement (Internal Audit)

Periodically, but not less than annually, Mapleton City should assess and audit the effectiveness of the elements of this SSMP. All elements should be reviewed for effectiveness as well as all records should be reviewed for completeness. An internal audit report should be prepared preferably annually but no less than once every five years which comments on the following:

- Success of the operations and maintenance program
- Success of other SSMP elements
- Adequacy of the SECAP evaluations
- Discussion of SSO's and the effectiveness of the response to the event including corrective action
- Review of Defect reports and adequacy of response to eliminate such defects
- Opportunities for improvement in the SSMP or in SSO response and remediation

The annual audit report need not be extensive or long. It should, however be sufficient to document compliance with the standards set in the SSMP. The audit reports should be maintained in accordance with the Mapleton City's records retention schedule.

9.4 SSMP Updates

When a plan deficiency is identified through an audit, inspection or plan review, and the deficiency requires an SSMP update, the plan may be updated at the discretion of the Mayor and City Council with the recommendations of the City Engineer/Public Works Director. SSMP updates should be recorded in a revision index maintained by the Public Works Department.

9.5 SSO Evaluation and Analysis

At least annually in the internal audit and more frequently as needed, Mapleton City will evaluate SSO trends based on frequency, location and volume. Trend evaluation will be empirical unless a large number occur sufficient to make a statistical analysis viable. If a trend is identified, a corrective action may be appropriate.

9.6 Public Communication and Outreach

Mapleton City will reach out to the public about the development, implementation and performance of the SSMP. This communication may be accomplished by any of the following methods:

- Public hearings
- Public meetings
- Newsletters
- Direct mailing
- Leaflets
- Other effective methods

Mapleton City will accept comments, either written or verbal and will review such comments for applicability. Public interest may be difficult to generate, but should be sought, non-the-less.

Chapter 10

Sanitary Sewer System Mapping

Mapping systems include:

- Paper based mapping system
- Collection system, outfall and subdivision maps
- Computer based GIS system

Chapter 11

Basement Backup Program

Basement backups are a serious impact on a home or business owner. As such, all reasonable efforts should be taken to prevent such backups from occurring. Sewer system backups are the result of several system problems. Such problems include any one or a combination of the following:

- 1) Laterals serving real properties are owned by the property owner and lateral maintenance is their responsibility. Roots, low points, structural failure, and grease are primary problems lateral owners face.
- 2) Backups caused by main line plugs are usually caused by roots, grease, low points, foreign objects and contractor negligence.
- 3) Piping system structural damage may cause basement backups. Such structural problems include age or deterioration damage, installation damage, excavation damage and trenchless technology damage.
- 4) Excess flow problems may surcharge a piping system and cause backups into homes. Excess flows usually occur when major storm waters inflow into sanitary sewers. Sanitary sewers are not designed for such flow. In addition, some homeowners may illegally connect foundation drains and sump pumps to the sanitary sewer system.

11.1 Basement Backup Response

When the Mapleton City is notified about a basement backup, staff will log the complaint in a complaint log. The person receiving the call may log the backup complaint or may ask administrative staff to document the complaint.

All backup complaints shall be investigated by staff. If the investigation determines that the case of the backup is only in the lateral, staff may offer technical information but should not take responsibility for cleanup or subsequent restoration

When it is determined that the basement backup is the result of a mainline problem, Mapleton City will follow the policy approved by the Mapleton City Council. A copy of this policy should be given to the home owner. It should be noted that all action Mapleton City takes are on a no-fault basis. Mapleton City does not accept liability nor does it waive its governmental immunity.

11.2 Backup Prevention Design Standard

Mapleton City promotes system designs which minimize backups and insure proper operations. To this end Mapleton City has a design standard for all system construction. In addition, Mapleton City complies with state design standards contained in R317-3. Finally for laterals, the following policy applies:

11.3 Reference Regulatory Documents

The following regulations are referenced in the establishment of this policy:

- Utah Code Title 15A-2-103(c). This code section adopts the 2012 edition of the International Plumbing Code.
- The 2012 International Plumbing Code, section 715 Sewage Backflow.

11.4 Mapleton City Policy

- The State of Utah has adopted the International Plumbing Code(IPC) as its plumbing building standard;
- Mapleton City use the IPC as their statute for plumbing construction and installation;
- And the IPC requires the installation of a sewage backwater valve “where the overflow rim of the lowest plumbing fixtures are below the next upstream manhole in the public sewer.”

Therefore, for new construction, Mapleton City requires the installation of backwater valves as stipulated by the IPC already propagated for all new construction.

Chapter 12

No-Fault Sewage Backup Claims Program

The purpose of this program is to assist in the cleanup of real and personal property, and/or compensate persons for the loss of real or personal property, destroyed or damaged as the result of a backup of Mapleton City facilities, regardless of fault, within the restrictions, limitations and other provisions of this policy.

12.1 Cleanup of Real and Personal Property

- 1) The City Administrator/Public Works Director may, in accordance with the Mapleton City's standard procurement procedures, engage the services of one or more cleanup contractors to perform cleanup services at the direction of the City Administrator/Public Works Director on an as-needed basis.
- 2) Upon discovering backup described in this Policy, a property owner should immediately notify the Public Works Director of such event.
- 3) Upon notification of the occurrence of the event, the Public Works Director may contact a cleanup contractor under contract with the Mapleton City pursuant to subsection 1) above, and direct the cleanup contractor to perform all cleanup work at the premises, in accordance with established cleanup criteria.
- 4) In the event the property owner engages the services of a cleanup contractor prior to notifying the Public Works Director, of the event, the Mapleton City may reimburse the property owner for actual expenses incurred by the property owner, but only up to the amount the Mapleton City would have paid its own cleanup contractor under subsection 3) above.
- 5) In the event any real or personal property cannot, in the reasonable judgment of the City Administrator and Public Works Director, be restored to its pre-event condition, in accordance with the cleanup criteria, the Mapleton City may pay to

the property owner the estimated fair market value (not the replacement value) at the time of the event, of such real or personal property, with the exception that carpet and major appliances will be replaced with new like-kind items.

- 6) In no event will the Mapleton City pay, or reimburse the property owner for the payment of special or consequential damages.

12.2 Establishment of Cleanup Criteria

The City Administrator and Public Works Director may, from time to time, establish cleanup criteria which will govern the Mapleton City's cleanup and payment responsibilities under this Policy. In establishing such cleanup criteria, the City Administrator and Public Work Director may give due consideration to generally available health guidelines, recommendations from governmental and academic experts, and other sources of guidance reasonably deemed by the City Administrator and Public Works Director are balanced, unbiased, and protective of health and safety.

12.3 Application - Time Limitations

Any request for reimbursement of cleanup expenses under this policy, or payment of fair market value, may be made by filing a written application in such form as prescribed by the City Administrator and Public Works Director. Such application must be submitted to the City Administrator and Public Works Director within thirty (30) days after the occurrence of the event.

12.4 Qualification for Assistance

An application or request for assistance or payment under this Policy may qualify only if the [responsible position], after due inquiry or investigation, makes an affirmative determination that the event was the result of a backup of Mapleton City facilities, and that none of the following circumstances apply:

- 1) The loss was the result of a force majeure including but not limited to acts of God, acts of public enemies, insurrections, riots, war, landslides, lightning, earthquakes, fires, storms, floods, washouts, droughts, civil disturbances, explosions, acts of terrorism,

sabotage, or any other similar cause or event not reasonably within the Mapleton City's control;

- 2) The loss was caused by either an act or omission of the property owner, the property owner's agent, or a member of the property owner's family or business;
- 3) The property owner failed to file a claim hereunder in a timely manner, or failed to comply with any other procedural requirements of this Policy;
- 4) The loss is the result of intentional or negligent acts of third parties; or
- 5) The loss is wholly covered by private insurance.

12.5 Reduction in Assistance

The Mapleton City may limit any assistance, or reduce any payment, under this Policy based upon any of the following:

- 1) The property owner did not act responsibly to prevent, avoid or minimize the loss;
- 2) The property owner is unable to fully substantiate or document the extent of the loss;
- 3) The loss is partially covered by private insurance.

12.6 Payment Does Not Imply Liability

Any assistance or payment made under this Policy shall not be construed as, and does not imply, an admission of negligence or responsibility on the part of the Mapleton City for any damage or loss. Any assistance or payment made under this Policy is strictly voluntary on the part of the Mapleton City. This Policy shall not in any way supersede, change or abrogate the state government immunity act, Utah Code Annotated, section 63-30-1 et seq., as amended, or its successor, and its application to the Mapleton City, or establish in any person a right to sue the Mapleton City under this Policy. Any assistance or payment made under this Policy and accepted shall constitute a full and complete release of any and all claims against the Mapleton City, its officers, employees and agents arising from the incident.

12.7 Budget Expenditures

The Mapleton City may authorize a fund from which amounts may be drawn to make the foregoing assistance or payments.

12.8 Claims from Other Governmental Agencies

Notwithstanding any other provisions of this Policy, no application shall be accepted from the United States or any of its agencies, the State of Utah or any political subdivision.

Appendix



**Mapleton City Engineering/Public Works
Defect Report Form**

Date: _____

Time: _____

Location of Defect: _____

Identified by: _____

Description of Defect: _____

Urgency of Needed Corrective Action:

Immediate Action Required:

Repair or Correct Soon:

Problem Stable:

No Immediate Action Needed:

Recommended Remedial Action: _____

