



**WASHINGTON CITY SEWER SYSTEM
MANAGEMENT PLAN, 2012**

SUNRISE ENGINEERING, INC.
April 2012

WASHINGTON CITY SEWER SYSTEM MANAGEMENT PLAN

APRIL 2012

INCLUDES:

OPERATION AND MAINTENANCE PLAN;
SEWER OVERFLOW RESPONSE PLAN;
FATS, OILS, AND GREASE CONTROL PLAN; AND
SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

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SECTION 1 – GENERAL SEWER SYSTEM MANAGEMENT PLAN

A. Introduction

A Sewer System Management Plan (SSMP) is a document that describes activities used to manage a wastewater collection system effectively. This SSMP is to aid Washington City in effectively managing operations. Effective management of a wastewater collection system includes the following:

- Maintaining or improving the condition of the City’s collection system infrastructure in order to provide reliable service into the future.
- Cost-effectively minimizing infiltration/inflow (I/I) and providing adequate sewer capacity to meet demands.
- Minimizing the number and impact of sanitary sewer overflows (SSOs) that occur.

This SSMP will also serve as a plan that, with future modifications, will meet the requirements of the State of Utah code, section R317-801, “Utah Sewer Management Program (USMP),” which is currently in draft format, but expected to be finalized in 2012.

Basic elements of a typical SSMP should include the following:

1. Collection system management goals (See Section 1.D).
2. Organization of personnel, including the chain of command and communications (See Section 1.E).
3. Operation and Maintenance Plan (See Section 2).
4. Overflow emergency response plan (See Section 4).
5. Fats, oils, and grease (FOG) control program (See Section 5).
6. Legal authority for permitting flows into the system as well as enforcement of proper design, installation, and testing standards, and inspection requirements for new and rehabilitated sewers (See Appendix A).
7. Measures and activities to maintain the wastewater collection system (See Section 2).
8. Design and construction standards (See Section 3).
9. Capacity management (See Section 6).
10. Monitoring plan for SSMP program effectiveness (See Section 7.A).
11. Periodic SSMP Audits, periodic SSMP updates, and implementation of program improvements (See Section 7.B-C).

B. Background Information

Washington City, Utah is located east of St. George City along I-15. Washington City has an approximate population of 18,000 people and includes an area of approximately 38 square miles. An area map showing the location of Washington City is shown in Figure 1.

C. Definitions

The following are definitions of terms that appear frequently in this report:

Class 1 SSO – Classified as “significant SSO,” is an SSO or backup that is not caused by a private lateral obstruction or problem that:

- a) Affects more than five private structures;

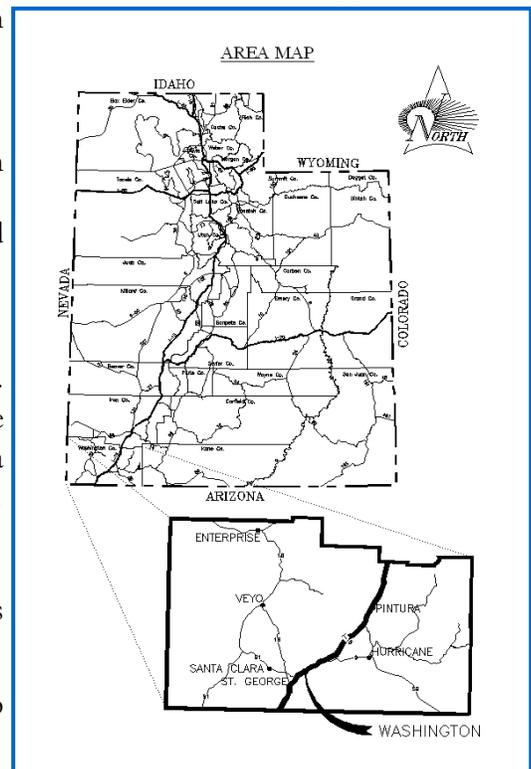


Figure 1. Area map

- 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.

Class 2 SSO – Classified as “non-significant SSO,” is an SSO or backup that is not caused by a private lateral obstruction or problem that does not meet the Class 1 SSO criteria.

Confined Space - a space that:

- a) is large enough and so configured that an employee can bodily enter and perform assigned work; and
- b) has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- c) is not designed for continuous employee occupancy.

Food Service Establishment (FSE) – An establishment which serves food and potentially releases FOG into the wastewater collection system. Examples of FSEs are restaurants, cafes, cafeterias, hotels, hospitals, and meat preparation facilities.

Fats, Oils, and Grease (FOG) – Byproducts of cooking, food preparation, and clean-up. FOG can build up on sewer lines and eventually cause SSOs.

Infiltration/Inflow (I/I) – Infiltration is generally considered to be extraneous water that enters the sewer system over longer periods of time, such as groundwater seepage through cracks in the sewer. Inflow is generally considered to be extraneous water that enters the system as a direct result of a rain event, such as through improper connections to the sanitary sewer, through flooded manhole covers, or through defects in the sewer. While it is virtually impossible to control all I/I, it is certainly desirable to reduce I/I when cost-effective.

Lateral – The portion of sewer that connects a home or business with the main line in the street.

Occupational Safety & Health Administration (OSHA) – A part of the U.S. Department of Labor, the main federal agency charged with the establishment, issuance, and enforcement of safety and health legislation.

Sanitary Sewer Overflow (SSO) – A spill, release, or unauthorized discharge of wastewater from a sanitary sewer system at any point upstream of a wastewater treatment facility that is caused by a problem in or with the City’s sewer lines including laterals owned by the City.

Sewer Overflow Response Plan (SORP) – A written plan to ensure that every report of a sewage overflow incident is immediately dispatched for confirmation and that in the event of an SSO, the SSO is contained and cleaned in an efficient and timely manner so as to limit the impacts to the public and environment.

Sewer System Management Plan (SSMP) – A written plan which describes activities used to manage a wastewater collection system effectively (See Section 1.A).

Stoppage – A build up of debris in the sewer which stops the flow of wastewater and allows the water to back up behind the stoppage, sometimes causing an overflow. A stoppage is also known as a blockage.

USMP – Defined as the “Utah Sewer Management Program.”

Wastewater Collection System – All pipelines, pump stations, and other facilities upstream of the headworks of the wastewater treatment plant that transport wastewater from its source to the wastewater treatment plant.

D. Goals

Washington City’s goals for the City’s wastewater collection system are as follows:

- To properly manage, operate, and maintain all parts of the wastewater collection system.
- To provide adequate capacity to convey peak flows.
- To minimize the frequency of SSOs.
- To mitigate the impact of SSOs.

Washington City will accomplish these goals by adhering to the management practices outlined in this report.

E. Organization

The following is an organization chart identifying the City staff responsible for implementing, managing, and updating the SSMP.

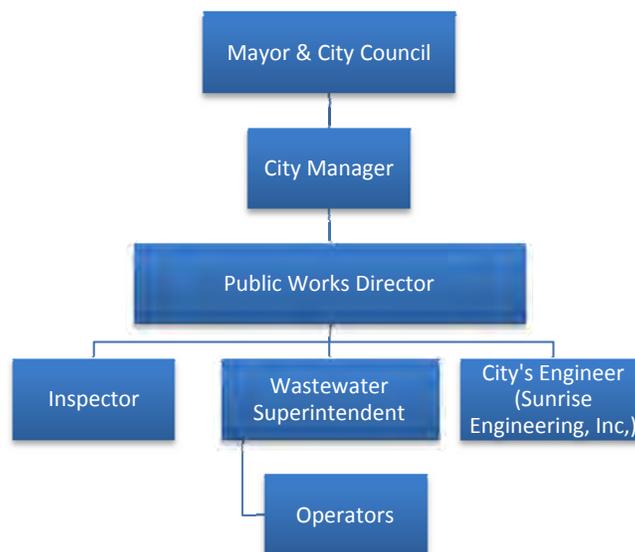


Figure 2. City organization for SSMP implementation, management, and updates

Mayor & City Council – Oversees City Manager. Approves rate changes and legal authority.

City Manager – Oversees Public Works Director. Provides information updates to Board or City Council. Arranges for emergency meetings if necessary.

Public Works Director – Plans strategy, leads staff, allocates resources, delegates responsibility, authorizes outside contractors to perform services, serves as public information officer, arranges necessary emergency meetings, provides information updates to the City Manager and City Council, directs Wastewater Superintendent, and ensures that the wastewater system is operated in accordance with State requirements and within its budget..

Inspector – Ensures that new and rehabilitated assets meet City standards, works with Operators to handle emergencies when contractors are involved, provides verbal reports to the Engineer, and prepares documentation of inspections.

Wastewater Superintendent – Manages field operations and maintenance activities, provides relevant information to City management, prepares and implements contingency plans, leads emergency response, investigates and reports SSOs, and trains and directs Operators.

Operator – Performs staff preventive maintenance activities, mobilizes and responds to notification of stoppages and SSOs, completes forms developed by the City, tracks expenditures, monitors system operation, and makes technical recommendations to the Mayor and City Council upon request regarding system

operations, system performance, system equipment and maintenance needs and status, operations cost changes, or the need for additional manpower.

City’s Engineer – Under the direction of the City, prepares and updates collection system planning documents including this SSMP and the City’s Wastewater Master Plan. Updates Design and Construction Standards. Participates in design and construction management of projects involving the wastewater system.

Current staff, their position, and contact information is shown in Table 1 below:

Table 1. Contact Information

Position	Name	Email Address	Phone Number	Cell Phone
Mayor	Kenneth Neilson	kneilson@washingtontcity.org	(435) 656-6308	
City Council Member	Kress Staheli	kress@washingtontcity.org		
City Council Member	Jeff Turek	jturek@washingtontcity.org		
City Council Member	Bill Hudson	bhudson@washingtontcity.org		
City Council Member	Thad Seegmiller	tseegmiller@washingtontcity.org		
City Council Member	Ron Truman	rtruman@washingtontcity.org		
City Manager	Roger Carter	rcarter@washingtontcity.org	(435) 656-6307	
Public Works Director	Michael Shaw	mshaw@washingtontcity.org	(435) 656-6317	(435) 680-1623
Inspector	Rick Wilcox	rwilcox@washingtontcity.org	(435) 656-6332	
Wastewater Superintendent	Andy Stevens	sstevens@washingtontcity.org	(435) 656-6317	(435) 773-8854
Operator	Chuck Gardner		(435) 656-6317	(435) 229-5860
Operator	Josh Faulkner		(435) 656-6317	(435) 229-1790
On Call / Emergency After Hours				(435) 773-1358
City’s Engineer	Dustyn Shaffer	dshaffer@sunrise-eng.com	(435) 652-8450	(435) 680-0407

F. Sanitary Sewer Overflows

See section 4.B for chain of communication of SSOs.

G. Sewer Collection System Use Ordinances

Excerpts from the City’s sewer collection system use ordinances are included in Appendix A.

Chapter 4 (Sewer Service Regulations) of the City Code includes the creation of the sewer department and positions of Superintendent and City Engineer; provisions for setting rates, penalty fees, etc.; requirements regarding qualified plumbing and quality of pipe; requirements for permits; giving department free access to the system; provisions making it unlawful to open sewer manholes without permission of superintendent and unlawful to destroy or interfere with any appurtenance to the sewer system; establishment of prohibited uses; etc.

Chapter 5 (Wastewater/Pretreatment Regulations) of the City Code sets forth the uniform requirements for users of the publicly owned treatment works for the St. George wastewater region; authorizes the City of St. George to act on City’s behalf on specific items; sets forth the position of program administrator who is the person designated by Washington City to administer Chapter 5 and pretreatment program; includes discharge standards; points to pretreatment plan for limits on fats, oils, and greases, pretreatment of wastewater, discharge permits; delegates responsibility for pretreatment program to manager; includes fees, reporting requirements for industrial users, compliance monitoring and enforcement remedies; and includes oil and grease standard.

SECTION 2 – OPERATIONS AND MAINTENANCE PLAN

A. Introduction

The purpose of the Operations and Maintenance Plan is to provide a summary of the sewer collection system and the operations and maintenance activities necessary to maintain the system operating properly. The Operations and Maintenance Plan includes the following:

- An up to date map of the sewer collection system.
- Routine preventative operation and maintenance activities.
- Rehabilitation, Replacement, and Improvement Plan.
- Operator Safety
- Schedule for training on a regular basis.

This Plan is not intended as a training manual, but is written as a reference guide for operators.

It is the responsibility of Washington City to operate the wastewater collection system such that it does not create a nuisance or a health hazard to the community. Furthermore, the City must coordinate with government agencies which include among others the following: the Utah Department of Environmental Quality (UDEQ), Washington County Health Department, and the U.S. EPA.

B. Map of the Sewer Collection System

An up to date map of the sewer collection system is provided in Appendix B.

The existing wastewater collection system consists of gravity sewer piping, force mains, manholes, and lift stations for Washington City that collect and transmit wastewater to the regional wastewater treatment facility.

C. Routine Preventative Operation and Maintenance Activities

In order to keep the system in good repair, the City has implemented routine preventive maintenance activities. These activities aid in preventing excessive infiltration/inflow, service interruption, and system failures that could result in SSOs. These activities also aid in preserving the capital investment made by the City and prevent more frequent costly repairs and replacements.

The following are routine preventive maintenance activities performed by City staff:

Cleaning:

- Scheduled cleaning of gravity sewers. The City is broken into zones based on five areas of the City. These zones are shown on the overall map and Sewer Cleaning Zone Map in Appendix B. One zone is cleaned annually beginning at high points and pulling down. Those areas with a history of

WARNING: ALL COLLECTION SYSTEM MANHOLES ARE CONSIDERED CONFINED SPACES. OPERATORS MUST BE AWARE OF AND FOLLOW CURRENT OSHA REQUIREMENTS AND COMPLETE APPLICABLE PAPERWORK, TO ENSURE BREATHABLE OXYGEN LEVELS AND NON-EXPLOSIVE GAS MIXTURES, PRIOR TO ENTRY INTO A CONFINED SPACE. FAILURE TO FOLLOW REQUIREMENTS MAY RESULT IN VERY SERIOUS INJURY OR DEATH.

stoppages are generally cleaned more frequently. As part of the cleaning process, a TV inspection is also performed.

- Scheduled cleaning of force mains. A similar process is used to schedule routine cleaning of force mains as gravity sewers.
- Private owned laterals are not maintained by the City. See the Sanitary Sewer Maintenance Policy included as Appendix E.
- Obstructions. Wastewater obstructions are difficult to locate in the pipe, unless they start to back up wastewater and become obvious. Wastewater obstructions generally occur on runs of piping with flatter slopes. If the line becomes completely obstructed, it may cause backups into homes. Partial obstructions often result in obnoxious odors emanating from manholes, which can be a clue to obstructions.

The most common types of obstructions result from grease, grit, and miscellaneous debris. Sometimes obstructions will be broken free by an unusually large flow. This may be evidenced at the plant by an unusually large amount of debris on the bar screen. The accumulated debris will also exhibit a definite odor.

Washington City has the capability of using a vacuum truck and jet-rodding capable of unclogging and cleaning sewer line spans of up to 1,000 feet. This system can loosen grease and grit in large quantities and is especially useful in cleaning out sewer mains.

Accumulations of grease are normally removed by the use of rods and cutters. Grit in small quantities may be removed by flushing. Grit may also be removed by means of “go devils” or turbine type agitators. Large accumulations of grease and grit may be removed by jet-rodding or heavy flushing, to a downstream manhole. This must be followed by manual removal of the debris, to ensure that buildup and subsequent obstruction does not occur in downstream lines.

Once an obstruction is located, it is recommended that the line segment be flushed or cleaned regularly, to discourage future obstructions.

Maintenance & Inspections:

- Root control in the areas known to have recurring SSOs due to root intrusion.
- Odor control by regular maintenance of the chemical injection system of the Coral Canyon lift station.
- Semi-weekly inspections and scheduled maintenance for each of the four lift stations. A preventative maintenance check list is shown in Appendix C. Also refer to the Preventive Maintenance Schedule included in the Operation and Maintenance Manual for each pump for inspection/maintenance items and recommended frequency. The inspection should generally include observations of the following:
 - The components comprising the alarm system (wet well controller and electrical system). Note how the pumps are sequenced.
 - The pumps (bearings, packing, seals, suction and discharge gauge pressures, speed, flow).
 - The pump motors (temperature, amperage and voltage, coupling and alignment, vibration and noise, cracks, leaks, and loose hardware).
 - Valves (check, pressure relief, and air release).
 - Oil levels and lubrication.
 - Belt wear and tightness.
 - Emergency generator (exercise under load—if present).

- Visual inspection of sewer manholes. A sewer manhole inspection form is included in Appendix Ca and should be used to document inspections. Visual inspections are performed semiannually and are primarily performed at ground level. The inspections should be accomplished so manholes are monitored at approximately the same time of day during subsequent inspections. The inspector looks for the following during the inspection:
 - Frame and cover defects;
 - I/I into the manhole;
 - Flow surcharging;
 - Grade adjustments;
 - Overall cleanliness;
 - Evidence of grease;
 - Surrounding pavement;
 - Roots;
 - Vermin;
 - Structural integrity of the manhole;
 - Flow rate and/or depth;
 - Conditions at the bottom of the channel (accumulation of solids, color of sewage, nature of flow entering and leaving manhole – choppy or smooth); and
 - Verifies accuracy and completeness of records.

Suggestions for visual inspections include working as a team and trying to inspect 25-50 manholes per day with the intent to obtain an overview of the system annually.

- TV inspection of sewer manholes and sewer pipes. TV inspection is performed at a less frequent time interval and when cleaning crews identify a possible problem location and during cleaning of main lines. TV inspection is utilized prior to most repair work of sewer pipes to gather information pertaining to the pending repair. The City owns a video camera with 1,500 feet of cable, capable of viewing and recording sewer lines. The inspector looks for the following during the inspection:
 - Apparent blockages in the pipe and the probable cause of the blockage (i.e. protruding tap);
 - Structural integrity of the pipe;
 - Grease buildup on the pipe;
 - Apparent I/I into the pipe;
 - Cross connections or illegal connections; and
 - Verifies accuracy and completeness of records.
- TV inspection is performed on all new construction.
- Investigation and resolution of customer complaints.
- Infiltration or exfiltration is verified by comparing the flows in a particular manhole with the flows of manholes feeding it. Infiltration will be evidenced by an increase in wastewater flow. Exfiltration will be evidenced by a decrease in flow. If either is suspected, the system should be televised to determine the extent and source of infiltration or exfiltration. If infiltration or exfiltration is significant, an Engineer should be consulted to recommend corrective actions.

All preventive maintenance activities are recorded using the forms in Appendix C. City administration keeps record of this information for use by the Public Works Director in coordination with the Wastewater Superintendent (documented in Cartograph – capability to spatially view video logs of TV inspections). For

each manhole, the results of this inspection are compared to past results. Significant or unexplained differences require additional investigation and corrective action if necessary.

All inspections use the form in Appendix C to appropriately score the manhole based on the inspection. These scores are used by the Wastewater Superintendent and Public Works Director in prioritizing maintenance and repairs.

Prioritization of maintenance activities is communicated via work order by the Wastewater Superintendent to the Operators. The prioritization is determined through analysis of past preventive maintenance activity records, inspection records, and past stoppages or other operational problems.

D. Rehabilitation, Replacement, and Improvement Plan

A Rehabilitation, Replacement, and Improvement Plan is meant to ensure that the collection system remains in good condition and is the means for the City to take a proactive approach to managing structural deficiencies in the system rather than a reactive approach. In a *reactive* approach, structural deficiencies are identified by waiting for system failures, such as stoppages, SSOs or equipment failures, to appear. Reactive approaches are generally more costly long-term than proactive approaches, especially with older systems. A *proactive* approach is actively seeking and correcting structural deficiencies before they fail. A proactive approach is generally less costly long-term and can lead to a collection system with improved performance and overall physical integrity.

A key component of a proactive approach of correcting system deficiencies is the concept of condition assessments. With a condition assessment, the system's facilities (manholes, main lines, service laterals, lift stations, etc.) are inspected and the results from the inspections evaluated to determine where to use funds set aside for the Rehabilitation, Replacement, and Improvements Plan. The flow chart shown in Figure 3 is a summary of the condition assessment process starting at "Inventory Database:"

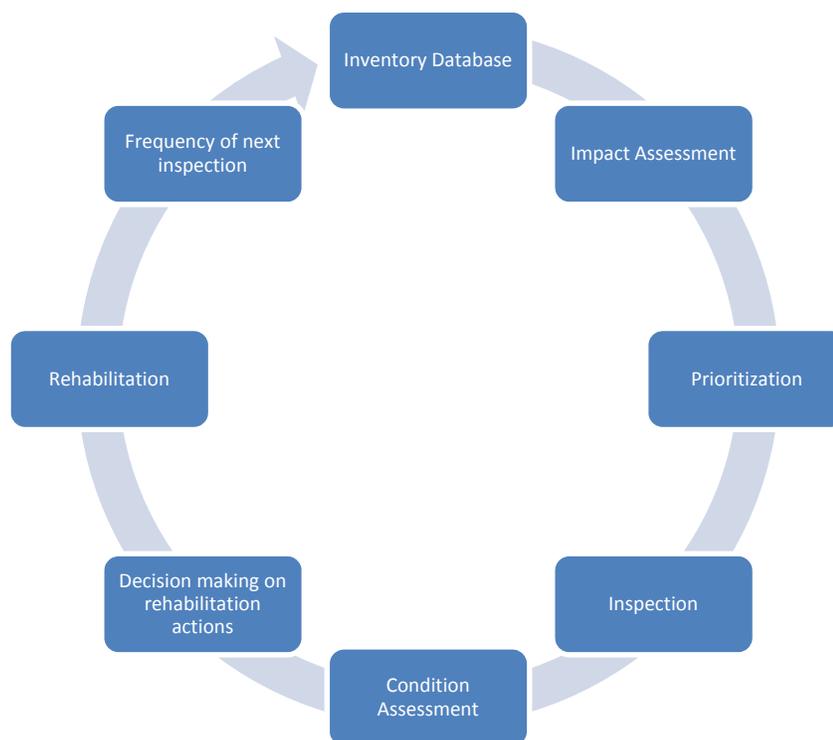


Figure 3. Condition assessment process

The process is defined as follows:

- Inventory database – This step includes identifying all possible components of the wastewater collection system that could be inspected. For the City, the database primarily consists of manholes, gravity pipes, force mains, and lift stations.
- Impact Assessment – This step of the process involves assessing each component on the list and giving each component a rating for risk (low, medium, or high) and for consequences of failure (low, medium, and high). Risk should be based on the age, pipe material, soil conditions, and history of failures. Consequences of failure should be based on location, number of people that would be affected, and nature of area affected in the case of a failure. Components of each lift station should similarly be analyzed using the condition assessment process and be included in the Rehabilitation, Replacement, and Improvement program. Components of risk and consequences are similar to those for the other facets of the collection system with the addition of consequences due to exposure of chemicals used at lift stations. Figure 4 below shows a diagram of the possible ratings:

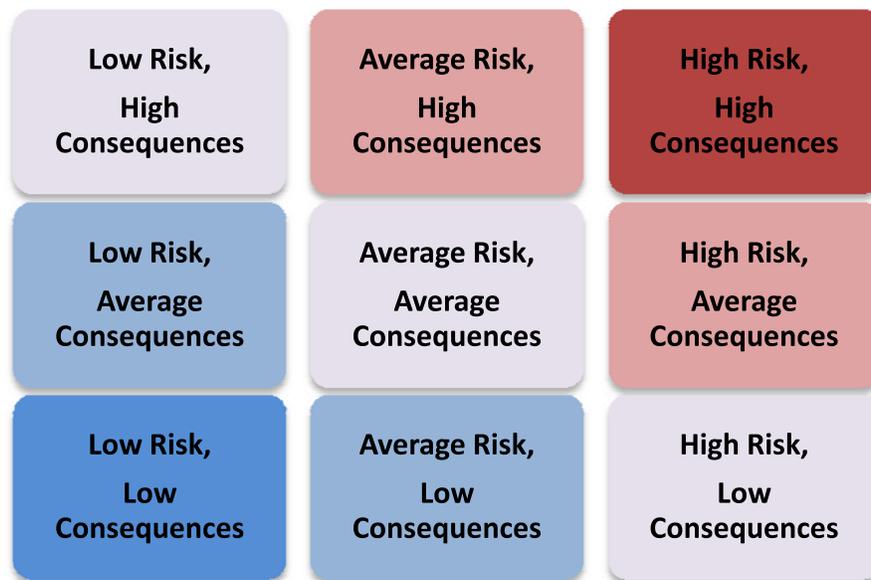


Figure 4. Impact assessment ratings

- Prioritization – Based on the impact assessment and depending on the amount of resources available to complete the inspections, components should be prioritized starting with the high risk, high consequence components.
- Inspection – Inspectors should inspect those components identified according to Section 2.C and scored according to Appendix C.
- Condition Assessment – This step includes organizing and analyzing the results from the inspections and preparing the data in a way to make decisions on the rehabilitation actions.
- Rehabilitation Actions – Based on the condition assessment and current budget, those components to be rehabilitated, repaired, or replaced should be identified.
- Rehabilitation, Repair, Replacement – This step includes the actual rehabilitation of the sewer system component selected during the condition assessment process. Various rehabilitation and replacement methods for pipe are displayed below:
 - Trenchless methods including pipe bursting, sliplining, deform-and-reform, and cured-in-place pipe (CIPP).

- Traditional dig-and-replace methods.

In lift stations, rehabilitation and replacement generally includes replacing the part identified (i.e. pump components).

Various rehabilitation methods of sewer manholes are shown below:

- Chemical grouting;
- Cementitious spray application;
- Epoxy coating;
- Installation of new frames and covers or resetting and adjustment of existing frames and covers;
- Internal or external rubber seals (chimney seals).

E. Operator Safety

The wastewater collection system is a source of many hazards. Some of the more common hazards are listed below:

- Manhole Hazards
 - Atmospheric hazards include oxygen deficient, poisonous or explosive atmosphere
 - Physical injury
 - Infection and Diseases
 - Insects or Spiders
 - Toxicants in the wastewater
 - Drowning
- Trenching Hazards
- Traffic Hazards

Manhole Hazards

IT IS THE CITY'S POLICY FOR PERSONNEL TO NOT ENTER MANHOLES; however, the following section discusses entrance into a manhole which should only occur during an emergency.

For work in confined spaces, such as manholes, Washington City must establish a confined space work program. An example of a confined space work program, confined space decision flow chart, and sample permit forms are found in Appendix D. For assistance in establishing the program, including equipment, records, and training required, the City should contact the consultation department at Utah Occupational Safety and Health (801) 530-6855.

Special problems of manhole work:

- Manholes occasionally have strong odors, which can cause olfactory fatigue. This is a condition where a sharp odor or prolonged breathing of an odorous atmosphere will cause the sense of smell to be temporarily lost. If a smell of gas or some dangerous substance is noticed when first opening the manhole, the lack of such smell at a later time must never be taken as an indication that the source or danger has been eliminated. Workers must not depend on odors to provide warnings; however, if a potentially harmful odor, such as hydrogen sulfide, is detected, recheck the atmospheric testing system.

WARNING: NEVER ALLOW ANYONE TO ENTER A MANHOLE UNTIL THE OXYGEN CONTENT OF THE MANHOLE ATMOSPHERE HAS BEEN VERIFIED TO BE BETWEEN 19.5 AND 21 PERCENT OXYGEN.

- If the atmosphere in a manhole has been displaced by a gas that has no breathable oxygen in it, life expectancy for anyone entering the manhole is approximately 3 minutes with awareness of the problem lasting less than 30 seconds. Under these conditions, a power operated man lift is essential, because the worker will not have the strength to climb back out of the manhole.
- Lowering the oxygen content of the air you breathe can result in a serious injury. The early warning signs that a topside worker holding the lifeline should be looking for include labored breathing (shortness of breath), chest heaving, and disorientation (changes from usual responses). Victims suffering from a lack of oxygen may require artificial respiration in severe cases. If the victim is still breathing without assistance, pure fresh air is safe and effective.

WARNING: ONLY A DOCTOR, TRAINED PARAMEDICS OR EMTS SHOULD GIVE PURE OXYGEN TO A WORKER SUFFERING FROM A LACK OF OXYGEN IN AN ATTEMPT TO REVIVE OR ASSIST THE WORKER. TOO MUCH OXYGEN IN A WORKERS BLOOD CAN ALSO BE DEADLY.

- Truck mounted boom type hoists are sometimes used for lowering and lifting workers into and out of manholes, while the worker is in a safety harness. An electric operated boom of this type must have an automatic power kill switch on the boom when the maximum cable length has been recovered by the drum.
- Always test safety equipment under conditions of use to learn how the equipment works and to be assured that it will work when needed.

Manhole entry procedure:

- The City has the following safety equipment available for manhole entry (however, IT IS THE CITY'S POLICY FOR PERSONNEL TO NOT ENTER MANHOLES):
 - Tripod with fall-safe winch
 - Portable Oxygen / Explosivity Alarm Unit
 - Ventilation Blower with hose
 - Manhole Enclosures
 - Aluminum ladder or Man lift
 - Hard hats
- The minimum crew to enter a collection system manhole consists of the worker who will enter the manhole, an assistant on the surface, and the lifeline attendant. The arrangement of safety and other

WARNING: ALL COLLECTION SYSTEM MANHOLES ARE CONSIDERED CONFINED SPACES. OPERATORS MUST BE AWARE OF AND FOLLOW CURRENT OSHA REQUIREMENTS AND COMPLETE APPLICABLE PAPERWORK, TO ENSURE BREATHABLE OXYGEN LEVELS AND NON-EXPLOSIVE GAS MIXTURES, PRIOR TO ENTRY INTO A CONFINED SPACE. FAILURE TO FOLLOW REQUIREMENTS MAY RESULT IN VERY SERIOUS INJURY OR DEATH.

equipment is generally accomplished by the entire crew; however, a support crew may be necessary to direct traffic and provide additional assistance as required. To enter a manhole:

1. The manhole safety enclosure is placed around the manhole if necessary.
2. The portable explosivity / oxygen alarm system is calibrated BEFORE removing the manhole cover. Test for explosive mixtures before the manhole cover is lifted, because removal of the cover may produce a spark, causing an explosion. Test the manhole from top to bottom for oxygen deficiency, explosive and toxic gases.
3. If an explosive atmosphere is discovered, do not remove the manhole cover.
 - A. Immediately notify your supervisor, providing the location and as many details as possible. Request that the police and fire departments, the industrial waste inspectors, and wastewater treatment plant operators be notified.
 - B. Turn off any running engines in the vicinity that may cause a spark, and route vehicles around the manhole using cones, flags and barricades. If possible, traffic should be routed off the street to reduce the potential for explosion.
 - C. Upstream and downstream manholes should be checked to determine the extent of the problem, and to locate and correct the source of the problem, if possible.
 - D. The system should be ventilated carefully with a large blower to eliminate the explosive hazard. Ventilation should be attempted from a safe upstream or downstream manhole, to keep workers and equipment away from the explosive hazard if possible.
 - E. Insure that there is no smoking in the area.
4. Never use hands to remove or replace any manhole cover. Always use manhole lifts approved by the safety agency responsible to regulate your activities.
5. Open manholes upstream and downstream from the work area to encourage natural ventilation of the sewer. Cover open manholes with grating and place barricades around them to warn traffic and pedestrians.
6. The area immediately around the manhole opening, including the manhole ring and lid ledge should be cleaned and all loose debris removed. Sweep the area before removing the manhole cover and clean the ring ledge after the cover has been removed.
7. Ventilation blowers should be started and the manhole atmosphere blown out prior to entry. The blower should be located in an area upwind of the manhole and at least ten feet from the opening. If the blower has a gasoline driven engine, the exhaust must be downwind from the manhole opening. Place the air intake to the blower from two to five feet above the ground surface, depending upon conditions (higher for dusty ground surfaces). Some agencies prefer to exhaust or pull air from the downstream manhole if possible.
8. Once the man entering the manhole has donned the safety harness, and had the lifeline attached, another crewman or the foreman should check it for proper fit and attachment.

While a worker is in a manhole:

- As long as there is a worker in the manhole, the end of his lifeline must be held continuously by a crewmember. This person shall perform no other function, but to keep constant watch over the worker in the manhole and to call for help if needed. The worker holding the lifeline should secure objects in his pockets, so that they cannot fall into the manhole when he bends over it. He must also be careful not to accidentally kick any tools or objects into the manhole.

- Tying the lifeline, to prevent it from falling into the manhole is a poor practice, especially if it is tied to an object that could be struck by a passing vehicle, causing injury to the worker in the manhole.
- Continue to use the alarm system, testing for an oxygen deficiency or explosive or toxic (hydrogen sulfide) gases in the manhole atmosphere at all times while the worker is in the manhole.
- Upon any indication of trouble, such as unusual behavior or warning signals from the alarm system, immediately bring the worker up out of the manhole.

After leaving a manhole:

- A person who has been in a collection system manhole should wash himself as soon as possible and have a hot shower and put on clean clothing before leaving work at the end of the day. Under no circumstances should the clothing worn in the manhole be worn home. Never expose your family to any contagious infection that might have come into contact with your clothing. No clothing that has been worn in sewer maintenance or repair work should be worn home or washed with family laundry.

Trenching Hazards

- When repairing sewer lines it is necessary to excavate trenches. Trench cave-in represents a deadly hazard to workers. The Occupational Safety and Health Act (OSHA) contains regulations, that must be followed regarding the erection of shoring, to protect workers from trench cave-in.

Traffic Hazards

- Sewer collection systems are primarily designed to be routed in roads and streets. Any time workers must work in roads and streets, traffic presents hazards. Properly employed traffic control procedures are necessary to prevent accidents.

F. Schedule for Training

Training personnel is important to effective operation of the collection system. The Utah Division of Water Quality requires continuing education for personnel to maintain their wastewater certificate. The following is required during the three year period prior to expiration date of certificate:

- For grades I and II, 2 CEUs are required for renewal;
- For grades III and IV, 3 CEUs are required.

The Utah DWQ defines 1 hour of specialized training as 0.1 CEU. Up to half of the required CEUs can be earned through attendance at the annual technical program meetings such as the Rural Water Association of Utah, Water Environment Association of Utah, and Water Environment Federation.

The Washington City wastewater collection system will require a Grade III operator certification (population 15,001-50,000). The education and experience requirements for Grade III operators are a high school diploma or equivalency and four years operating experience (refer to R317-10 of the Utah Administrative Code regarding certification of wastewater works operators). Operators must be able to complete written State of Utah Department of Environmental Quality (UDEQ), Division of Water Quality reports. They must be willing and able to follow written instructions, essential for proper operation of the wastewater collection facilities. Such instructions include, but are not limited to, essential cleanliness standards, developing an understanding of requirements and a willingness to work in confined spaces, and the proper use of equipment as required for operation of the wastewater system by OSHA safety standards.

Table 2 on the following page provides a roster of certified Washington City wastewater operators.

G. Equipment and Replacement Parts

The storage of spare parts is important in order to maintain uninterrupted and efficient service. Washington City stores replacement parts for stock items that may not be readily available. For smaller items the City relies on local suppliers to maintain an inventory and adequate supply of spare parts.

H. Emergency Response

Emergency conditions can be imposed on a collection system by natural disasters, loss of work force, civil disorders and equipment failures. Emergency planning is essential to ensure continued effective operation during these emergencies. Please refer to the City's Emergency Response Plan for further details.

SECTION 3 – DESIGN AND PERFORMANCE PROVISIONS

The purpose of design and performance provisions is to mitigate SSOs and other operational problems that are caused by poor design or construction of the sewer system components. Effective design and performance provisions can minimize system deficiencies that could create or contribute to future overflows or operations and maintenance problems.

Washington City has Design and Construction standards and drawings for the installation of new sewer system components. The standards and drawings can be found online at the following links:

http://new.washingtoncity.org/pubworks/downloads/ConstructionDesignStandardsFull_Doc.pdf

http://new.washingtoncity.org/pubworks/downloads/construction_details2.pdf

Some sections of the Design and Construction standards which specifically apply to the installation of the sewer collection system are detailed below. This list is not intended to be all inclusive, but provide an idea of details pertaining to the sewer system included in the Design and Construction Standards.

2.2.4 – Sewer Drawings

2.2.10 – General Utility Location Information

3.5 – Sanitary Sewer Design

3.5.1 – Design Flows

3.5.2 – Minimum Size and Depth

3.5.3 – Alignment

3.5.4 – Service Connections

3.5.5 – Manholes

3.5.6 – Utility Clearances

3.5.7 – Suspended Crossings

3.5.8 – Pressure (Force) Mains

3.5.9 – Sewer Lift Stations

4.4.1.1 – Sewer Pipe and Fittings

4.4.1.3 – Sewer Manholes

4.4.2.4 – Pipe Laying and Bedding

4.4.2.7 – Cleaning of Sanitary Sewer Lines

4.4.3.2 – Sanitary and Storm Sewer Line Testing and Acceptance

Some of the standard details which specifically apply to the installation of the sewer collection system are detailed below. This list is not intended to be all inclusive, but provide an idea of details pertaining to the sewer system included in the Standard Drawings.

Dwg No. 170 – Trench Backfill and Repair Detail

- Dwg No. 171 – Manhole and Valve Boxes Concrete Collar
- Dwg No. 173 – Concrete Manhole Collar
- Dwg No. 220 – Standard Manhole Details
- Dwg No. 221 – Junction & Drop Manhole Details
- Dwg No. 222 – Manhole Frame & Cover Details
- Dwg No. 223 – Manhole Step Details
- Dwg No. 224 – Sewer Cleanout Cover Detail
- Dwg No. 230 – Typical Residential Sewer Connection Details
- Dwg No. 231 – P.V.C. Service Connection Existing P.V.C. Sewer Mains
- Dwg No. 232 – P.V.C. Service Connection New P.V.C. Sewer Mains

SECTION 4 – SEWER OVERFLOW RESPONSE PLAN

A. Introduction

The primary purpose of the Sewer Overflow Response Plan (SORP) is to protect public health and the environment by providing a program to respond to SSOs. A SORP provides a standardized course of action for City personnel to follow in the event of an SSO and ensures that the City is adequately prepared to respond to SSO events.

The overall objectives of the SORP are shown below:

- Protect public health and the environment;
- Satisfy regulatory agencies and discharge permit requirements;
- Address procedures for managing sewer SSOs;
- Minimize risk of enforcement actions against Washington City;
- Protect private and public property beyond the sewer collection system facilities;
- Provide appropriate customer service in the event of a SSO;
- Protect wastewater collection system personnel in the event of a SSO.

This plan is meant to serve as a guide to responding to the following applicable emergencies:

- Sanitary sewer overflows to the waters of the state;
- SSOs that reach the surface, but not the waters of the state;
- Sanitary sewer breaks which remain in the trench;
- SSOs from City main that reach basement;
- City owned lateral backups;
- Private sewer lateral backups.

Each of the events mentioned above shall be treated as an emergency. In the event that the SSO is caused by a private lateral backup, the City personnel can treat it as any of the other emergencies at their discretion; however, they should treat the backup as a serious problem (See the Sanitary Sewer Maintenance Policy included as Appendix E). The ultimate responsibility in the case of a private sewer lateral backup resides with the property owner. The City personnel can give advice to the property owner, but the property owner is the decision maker.

The four basic elements of an effective SORP is notification, response, reporting, and impact mitigation as explained below:

- Notification – this refers both to the methods for the public to notify the City in the event of a SSO and to internal communications during and after the event.
- Response – the SORP should include a plan of action to mobilize for response given a report of a SSO.
- Reporting – this element refers to the determination of whether the SSO is a Class 1 or Class 2 SSO and if the 24 hour report to the State is required as well as preparation of reports to be included in the USMP annual report and other reports that may be necessary for other agencies.
- Impact Mitigation – The plan should include descriptions of potential failure modes and strategies and emergency operations for responding to these potential system failures.

B. Chain of Command for Responding to SSOs

The following is the chain of command for responding to SSO's:

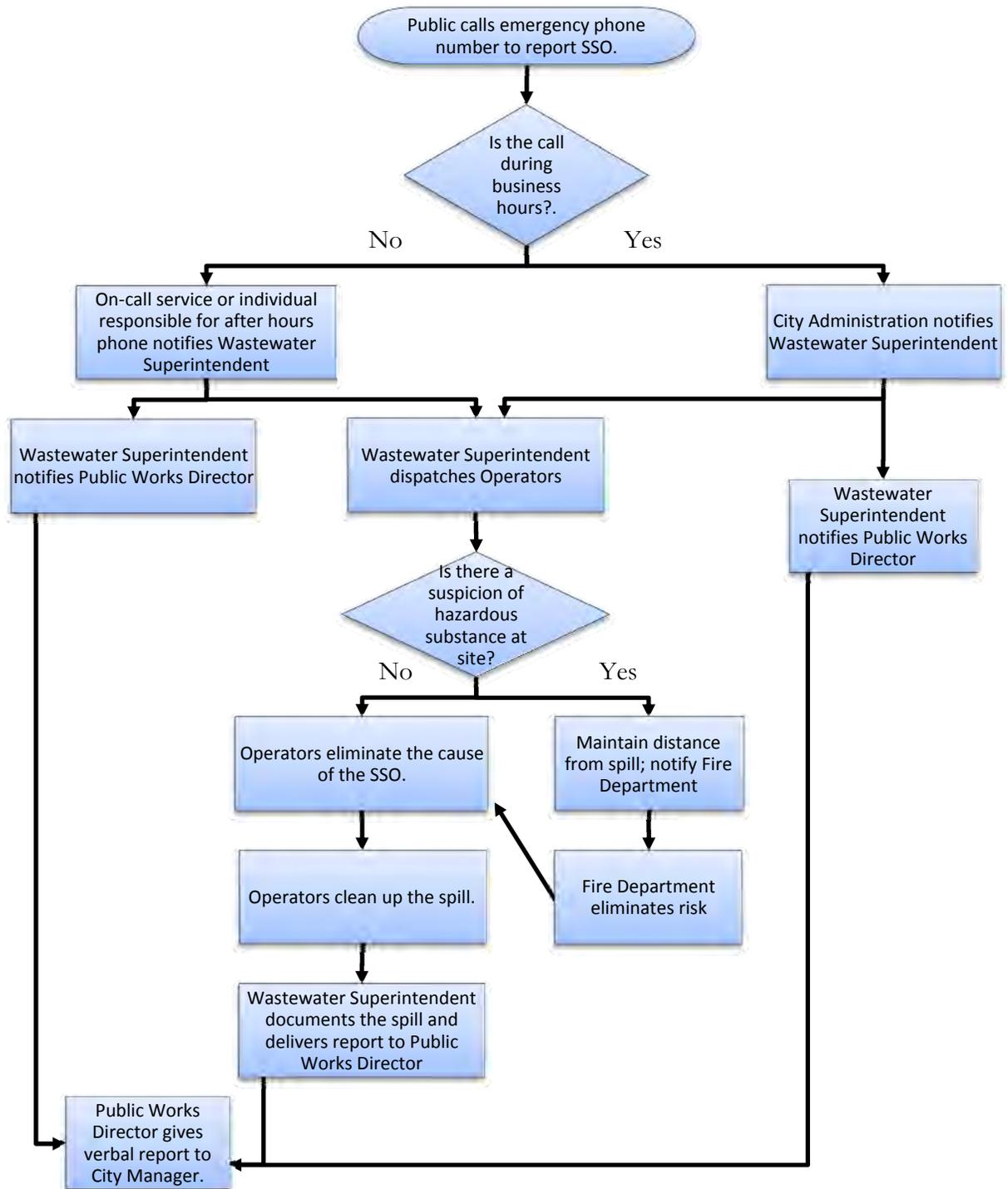


Figure 5. Chain of command for responding to SSO's

Figure 5 above shows all four basic elements of the SORP: notification, response, reporting, and impact mitigation.

C. Notification of SSOs

The first step in the process of mitigating SSOs is knowing where and when they occur. Notification of an SSO can come through the public or directly from City personnel. A potential spill is not classified as an SSO until it has been verified by the Wastewater Superintendent. As outlined in Figure 5 on the previous page, during business hours City Administration is responsible to receive phone calls from the public regarding possible SSOs. However, during non-business hours there is one assigned City staff member responsible for 24-hour emergency assistance each day. For both scenarios, the City Staff member gathers information from the caller and immediately thereafter contacts the Wastewater Superintendent to notify him of the emergency. The name and phone number for the Wastewater Superintendent is given to the caller for their reference.

CAUTION: THE DIVISION OF WATER QUALITY MUST BE NOTIFIED AFTER ANY EVENT THAT RESULTS IN A SPILL OR LOSS OF CONTAINMENT OF WASTEWATER.

The following information should be documented for each phone call regarding a possible SSO (See Backup Notification/Complaint Form in Appendix F):

- Time and date the call was received;
- Specific location of possible SSO;
- Description of the problem;
- The time that the SSO was noticed by caller;
- Caller's name and phone number;
- Caller's observations (odor, duration, location on property); and
- Other relevant information that may aid in a more effective response to the SSO.

Failures in the lift station are designed to trigger an alarm system via the building's SCADA. The alarm system sends a text message or phone call to the Wastewater Superintendent advising him of the potential problem. In this case the Wastewater Superintendent is in charge of notifying the Public Works Director of the potential problem.

D. Responding to SSOs

Responding to SSOs in an efficient and timely manner is critical. This is the step that eliminates the cause of the SSO and cleans up the effects of the SSO. After the Wastewater Superintendent has been notified of the potential SSO and has confirmed that it indeed is an SSO (whether he is personally on-site or whether the Wastewater Superintendent sends an Operator to verify), the Wastewater Superintendent will dispatch the Operators with appropriate equipment and supplies to mitigate the problem. The Wastewater Superintendent is responsible to call the Public Works Director and advise him of the situation and the crew that has been dispatched.

When crews have been dispatched to the site of an SSO, they shall show up immediately to the SSO. The first responders at the SSO site shall identify and mitigate the cause of the SSO. They shall then identify and protect all waters of the State, and shall address all other issues.

When assisting private property owners, the response crews shall use discretion. They shall ask permission before entering the property and shall work at the direction of the property owner. The City could face increased liability if further damage occurs as a result of the mitigation by the Operators.

When arriving at the scene if the crew members sense a suspicious odor not common to sewer systems (e.g. gasoline), or if a suspicious substance is on the ground (e.g. oil sheen, foamy residue), the crew member shall immediately contact the Wastewater Superintendent for further guidance. In the event that it is determined that a hazardous material response team is needed, the crew shall await the arrival of the Fire Department to take over the scene. All City personnel are advised to maintain their distance from the spill if this is the case, and reminded that any open flame can provide ignition for an explosion. When the Fire Department arrives, the Wastewater Superintendent and the Operators shall take direction from the Fire Department until they indicate that the City can proceed with the containment, correction and cleanup activities.

If the Wastewater Superintendent is not present for the entire event, he shall discuss with the Operators their finding during his absence. The Wastewater Superintendent shall also further interview the public at the site to determine other relevant information. He shall include all discussions in his report (See Sanitary Sewer Overflow Report in Appendix F).

The following are the responsibilities of the response crew upon arrival at the SSO:

- Determine the cause of the SSO (see list of possible causes in Section 4.F).
- Evaluate the need for additional resources to correct the SSO (including possible help from private contractors) and contact Wastewater Superintendent with request for more resources if needed.
- If private property is impacted notify City Staff so that they can notify the Washington County Health Department.
- Take action to stop the cause of the SSO.

The following are the initial measures for containment of the SSO after the cause has been determined and stopped or during the stopping phase:

- Determine the immediate direction of the SSO.
- Identify and request additional resources needed to contain or isolate the SSO.
- Take action to contain the SSO.

The following are the measures to clean up the SSO after the SSO has been contained or isolated:

- The area shall be thoroughly flushed and cleaned of any sewage or wash-down water. Solids and debris shall be properly disposed.
- The SSO site is to be secured to prevent contact by members of the public until the site has been thoroughly cleaned.
- Where appropriate the SSO site shall be disinfected.

E. Reporting SSOs

The following is the chain of command for reporting SSO's.



Figure 6. Chain of command for reporting SSOs

The following are the agencies to which the Public Works Director would send reports per the requirements of the State of Utah code, section R317-801, “Utah Sewer Management Program (USMP),” which is currently in draft format:

Division of Water Quality:

- A Class 1 SSO shall be reported orally within 24 hours and a written report submitted to the Division of Water Quality within five calendar days. Class 1 SSOs shall also be included in the USMP annual report.
- All Class 2 SSOs shall be reported on an annual basis in the USMP annual report.
- A USMP annual report shall be submitted to the Division of Water Quality covering information from the previous calendar year by April 15 of the following year.

County Health Department:

- In the case that the sanitary sewer overflows to waters of the State, the County Health Department shall be contacted immediately.
- For all other cases, if in the opinion of the Public Works Director there is a threat of a public health issue due to the SSO, the Public Works Director shall contact the County Health Department.

F. Impact Mitigation

There are a variety of causes that could trigger a SSO. A list of possible causes is shown below:

- Blocked sewers
- Pipe failures
- Mechanical malfunctions
- Vandalism
- Construction of other utilities
- Natural disasters

Below is a plan of action to respond to the possible causes of SSOs shown above:

- Blocked sewers (See “Obstructions” in Section 2.C)
 - If blockage is within a sewer main, clear the line from dry maintenance hole if possible with the City’s vacuum and jetting system
 - If blockage is within service line, use the vacuum and jetting system to clear the line if necessary.
 - If blockage cannot be cleared, increase containment or implement by-pass pumping and use CCTV inspection to determine the cause of the blockage.
- Pipe failures
 - Generally pipe failures occur due to the degradation of the structural integrity of the pipe due to factors such as corrosion, pipe age, joint failure, unstable soil foundation, overburden, and improper pipe bedding material. Other pipe failures may occur at stream crossings as a result of erosion cutting the stream invert deeper or eroding the protective cover of the stream banks.

- Initial repairs include fully exposing the pipe, sleeving the pipe, and applying the appropriate clamp. Wastewater should be bypassed around the section of pipeline with the pipe failure to allow for the pipe to be repaired.
- For pipe failures at stream crossings, further repairs include stabilizing the stream bank via gabion baskets or rip rap and soil cover
- Mechanical malfunctions
 - If the pump station does not have power, activate the emergency generator. Make sure the generator is running properly and has adequate fuel.
 - If a pump is not functioning, activate the standby pump.
 - Inspect force main for signs of blockage.
- Vandalism
 - Most vandalism occurs at manholes when foreign objects are inserted in the manhole and block the sewer line. In this case, the procedures for blocked sewers should be followed.
- Construction of other Utilities
 - Sewer pipes can be damaged while digging trenches for other utilities. In this case, the same procedure should be used as for pipe failures (expose the pipe, sleeve the pipe, and apply the appropriate clamp).
- Natural disasters
 - Possible problems caused by natural disasters include exposure of pipe at stream crossings due to floods and malfunction of pumping equipment at lift stations due to fires. In either event, the public should be notified immediately and measures should be taken to bypass the problem area until repairs can be made.

G. Proactive Measures to Prevent SSO's

See Section 2.C for routine preventative operation and maintenance activities which are beneficial to preventing SSO's.

H. Public Notification

In the event of a significant SSO that cannot be contained, the public should be notified via a press release to the local news, publications in the area paper, or information handouts to affected or potentially affected property owners. In general, as the extent of the SSO increases, the public notification should also increase.

SECTION 5 – FOG CONTROL PLAN

A. Introduction

Generally, one of the leading causes of SSO's in a wastewater collection system is from fats, oils, and grease (FOG). In a report to Congress in 2004, the EPA identified that “grease from restaurants, homes, and industrial sources are the most common cause (47%) of reported blockages” causing SSOs.

Although FOG caused blockages are not a major problem in Washington City, future growth may lead to the necessity of implementation of the FOG Control Plan. At a minimum the City should require grease traps be in place and inspected before issuing business licenses or building permits to FSEs. Also, Washington City's current pretreatment ordinance (see Section 7-5A-6 in Appendix A) includes limits on discharging wastewater containing more than 50 mg/l of total oil and grease.

The intent of the FOG control plan is to limit FOG caused SSOs by reducing the amount of FOG discharge to the wastewater collection system.

The general process of the FOG Control plan includes the following:

- Characterizing FOG sources.
- Identifying collection system hot spots.
- Identifying City staff responsible for FOG Control Plan.
- Establishing FOG handling and disposal practices.
- Establishing a FSE and grease handler database.
- Providing outreach to FSEs
- Developing an inspection and monitoring approach.

B. FOG Sources and System Hot Spots

FOG is a byproduct of cooking, food preparation, and cleanup. FOG becomes a problem in the wastewater collection system because it cools in the pipes and starts to congeal. FOG eventually becomes a solid which can build up on the walls of pipes in the wastewater collection system and cause blockages in the system.

FOG captured on-site is generally classified into two broad categories: yellow grease and grease trap waste. Yellow grease is derived from used cooking oil and waste greases that are separated and collected at the point of use by the food service establishment.

In order to mitigate the effects of FOG, it is important to understand the sources of FOG in the system. In order to understand the sources of the FOG, the City must determine the location of collection system “hot spots,” how these hot spots are related to FOG discharges, and where the FOG originates. The City should then focus their resources at eliminating FOG discharges at the sources.

In determining sources of FOG it may become necessary to review records pertaining to the collection system. The following is useful information to review which may aid in locating FOG hot spots and FOG sources:

- Identify any particular problem sites within the collection system based on SSOs, extent of cleaning frequency, odor reports, and any other type of citizen complaints.
- Review collection system operator's notes, especially on the type of materials being removed during cleaning.

- Compile the information and categorize the hot spots by the cause of the operational problems (e.g., roots, FOG, structural issues).
- Produce collection system maps using GIS that show the spatial relationships between the hot spots and particular areas in the City (e.g., high density or single family residential areas, business districts, and restaurant districts).
- Rate the severity of each hotspot on the map and use this information to determine correlations between upstream use and FOG-related hotspots.
- Characterize the sources of FOG at each FOG-related hotspot. Depending on the source of the FOG, program resources should be allocated accordingly. For example, if FOG is accumulating downstream of a residential area, resources should be directed towards public education. However, if FOG problems are occurring downstream of restaurants and business districts, program resources should be allocated towards educating FSEs.

C. Administration of FOG Control Plan

The FOG Control Plan should be managed by City Staff. The FOG Control Administrator will be designated by the Public Works Director and will be responsible for implementation of the FOG Control Plan. The FOG Control Administrator will report directly to the Public Works Director at least quarterly regarding status of the implementation of the plan. The FOG Control Administrator will be responsible to analyze the system for hot spots or sources of FOG; perform inspections or direct City personnel to perform inspections of FSEs; and coordinate public outreach.

D. FOG Handling and Disposal Practices

The following are FOG control practices that may be implemented to reduce the amount of FOG in the wastewater collection system:

Required types and sizing of grease removal equipment – Correct sizing of grease removal equipment is important. Equipment that does not include enough capacity may not remove the desired amount of grease. Equipment that is oversized produces a long detention time which can result in the formation of hydrogen sulfide which is odor causing, corrosive, and damaging to grease removal equipment and downstream sewer piping. Typical size requirements are included as Appendix H of the Uniform Plumbing Code.

Operation and Maintenance of Grease Removal Equipment – O&M of grease removal equipment include requirements such as prohibition on dishwasher or garbage disposal connections to grease control devices and specifying cleaning frequencies, effective cleaning methods, and retaining pump-out records.

Best Management Practices (BMPs) – BMPs are used to aid in reducing the amount of FOG discharged to the collection system. These include activities such as dry clean-up methods for FOG spills, scraping plates prior to washing, using baskets in sink drains, prohibiting addition of chemical or biological grease control agents, posing of instructional signs, and general equipment recommendations.

Grease Storage for Recycling – Recommendations for storage of yellow greases that are stored for pickup by recycling companies include specifications of the type of container, tight-fitting lids, and establishing a secondary containment in case of spills.

Allowable FOG Disposal Methods and Locations – Recommendations for disposal methods and locations of FOG may be given.

E. FSE and Grease Handler Database

Essential to a FOG Control Plan is staying organized via databases. Three main databases should be kept: FSEs, grease handlers, and collection system O&M.

Below is a list of useful records for identifying FSEs:

Table 3. Records to Identify FSEs

Organization to Contact	Available Records
Municipal Business License Department	List of local business licenses
City/County Storm water Program	List of NOIs, inspection reports
Local Health Department	Business list/inspection reports
Yellow Pages	Advertisements for local restaurants, listings for cooking schools.
Chamber of Commerce	Existing and new business lists
Building, Utility, and Fire Departments	Field inspection reports
Pretreatment Program	List of permittees

Below is recommended data to be included in the database for FSEs. The majority of the data should be collected from inspectors during inspections of the FSE.

Table 4. Recommended Data for FSE Database

Data to be Stored	Data to be Stored (continued)
Name of FSE, address, phone number	Interceptor Cleaning Frequency
Property owner, address, phone number	Health Department License Number
Manager's name	Number and type of violations
Contact person's name	Monthly average water use
Number of employees	Monthly wastewater discharge volume (if available)
Type of food served	Link to downstream sewer blockage or SSO
Hours of operation	History of FOG discharges (if reported)
Number of meals served per day	Current FOG disposal method
Peak hours of operation	Name of contracted grease hauler
Peak customers per hour	Sources of FOG
Seating capacity	Have vapor hoods? Yes/No
Major equipment checklist: garbage disposal, ice machine, dishwasher	Vapor hood cleaning service (name, contact information)
Grease Removal Equipment: Yes/No, type, capacity: _____gallons	On-site or off-site vapor hood cleaning?
Waste hauling records or invoices	Education materials provided to the FSE (training, posters, brochures).

In order to make sure that the list is up to date, the FOG Control Administrator should be in constant contact with pertinent agencies. If possible, the FOG Control Administrator should request to be put on circulation lists or automatic email notifications when new business licenses are issued, building permits/expansion plans are approved, and health department or storm water program violations are noted.

There are two types of grease handlers. Grease haulers clean out grease traps and interceptors at FSEs and dispose of the collected wastes. Grease recyclers collect yellow grease stored on-site. A list of the grease

handlers should be included in the database. This list can be formed using information from the yellow pages or from information from FSEs. Some of the information in the database should be the same as in the FSE database, but the database should also include information such as type of equipment used, contracted FSEs, type of handler (hauler or recycler) and any ongoing disputes or actions.

The collection system O&M database should be a compilation of FOG blockages and SSOs that could have been caused by FOG. All information from the blockage reports should be included in the database. The database should be represented spatially with GIS mapping.

F. Outreach to FSEs

An outreach program to FSEs is an essential part to limiting the amount of FOG in the collection system. If FSE Owners, FSE employers, grease haulers, and grease recyclers understand the negative effects caused by FOG, they should be more willing to take preventative measures to reduce FOG discharge into the system.

Stakeholder meetings may be conducted to address the FOG Control Plan. Restaurant owners, restaurant associations, grease haulers, grease recyclers, and City personnel should be invited. The meeting can be used to inform stakeholders of the issues and gauge their comprehension of the issues. Discussions should include appropriate outreach methods to employ effective compliance motivations and appropriate FOG handling and disposal methods.

A list of possible outreach materials is shown below:

Table 5. Possible FSE Outreach Materials

Informational Materials	Operational Materials
The impact of grease waste on the sewer system (overflows, increased O&M costs, increased sewer use rates)	BMPs
The fundamentals of the FOG Control Program (i.e., why the program is necessary)	List of certified grease haulers and recyclers
Information on types of grease removal equipment	A list of approved disposal facilities
Proper grease disposal methods	Installation and maintenance requirements for grease removal equipment (interceptors and traps)
The effects of FOG-related sewer line blockages on businesses and the environment (public health and water quality concerns)	Sizing and design specifications for grease removal equipment
The value of recycling yellow grease	
Contact information for questions or concerns	
Frequently asked questions	

G. Inspection and Monitoring

Inspections are necessary to a FOG Control Plan in order to ensure that the measures in the FOG Control Plan are being met and to establish a line of communication between the FSE and the City. Inspectors are able to emphasize the importance of the FOG Control Plan.

Inspectors should be trained prior to performing inspections. Training should include inspection procedures and a segment on interpersonal communication and adversity training for the event of difficult exchanges with FSE employees and when their authority may be challenged.

An inspection prioritization list should be included in the development of an inspection plan. The plan should include frequency, type of approach, and follow-up intervals.

Prior to the initial inspection of an FSE, education outreach material should be sent to the FSE with a letter from the FOG Control Administrator in order to familiarize them with the inspection process and the reason for the inspections.

During inspections, inspectors should wear photo badges, arrive in an official City vehicle, if possible, and carry a copy of the introductory letter in order to clearly identify themselves and clarify the purpose of the inspection. Inspections may be announced or unannounced, depending on the regulatory framework of the agency or the type of relationship maintained between the inspectors and the FSE operators.

A list of recommended equipment and paperwork to carry on inspections is presented in the table below:

Table 6. Recommended Equipment and Paperwork for FOG Inspections

Equipment	Paperwork
Maps (County, City, GIS)	Inspection Checklist, FSE File
Manhole Pick	List of Plumbers (with disclaimer)
Hydrogen Sulfide gas detector ¹	List of Grease and Oil Recyclers
Depth Probe	Method of Documenting Inspection
Ratchet Set	Results (e.g., PDA or inspection form)
Pipe Wrench (to open cleanouts)	BMP List and Brochures
Mirror (for looking inside manholes and interceptors)	Manufacturer’s Drawings (for the type of grease removal device to be inspected)
Camera	Authorized list of grease haulers (with disclaimer)
Steel Toed Shoes	
Gloves/Safety Glasses	
Sample Bottles and Sampling equipment	
Fluorescent Safety Vest	
Flashlight	

¹ An important safety consideration when performing inspections is measurement of the concentration of atmospheric hydrogen sulfide. Harmful hydrogen sulfide concentrations may exist at grease interceptor access points, collections system manholes, and/or lift stations.

A checklist for areas to inspect and questions to consider during an inspection is presented in the table below:

Table 7. Checklist of Areas for FOG Inspection

Inspection Activities
Request copies of receipts from grease handlers for services completed since the last visit.
Inspect grease removal equipment and cleaning logs to determine if the equipment is being operated and maintained properly.
Inspect connections to the grease trap or interceptor to ensure that only authorized equipment and fixtures discharge to the device.
Check for evidence of illicit dumping such as debris/loose screws in floor drains, missing or altered log entries, use of vegetable sink for washing dishes (vegetable sinks are not usually plumbed to a trap or interceptor).
Spot check for evidence of BMP implementation (scraper for dishes, spill kit, BMP poster, training log, drain screens, grease bins, etc.).
Collect samples for laboratory analysis of FOG concentration, if necessary.
Determine how waste grease is collected from wok stoves, deep fat fryers, and grills.
Inspect grease barrels to determine if grease is being stored properly.
Discuss cleaning methods for roof vents and vent hoods. If they have a self-cleaning hood, where does the wash water discharge?
Request copies of receipts detailing pickup dates/volumes collected by grease recyclers.

After an inspection, an inspection report should be completed and submitted to the FOG Control Administrator (See FSE Inspection Form in Appendix G). A copy of the report may be given to the FSE.

Follow-up procedures for violators are an important part of the FOG Control Plan. The extent of the procedures depends on the severity of the violation. The hierarchy of enforcement responses is shown in the following figure:

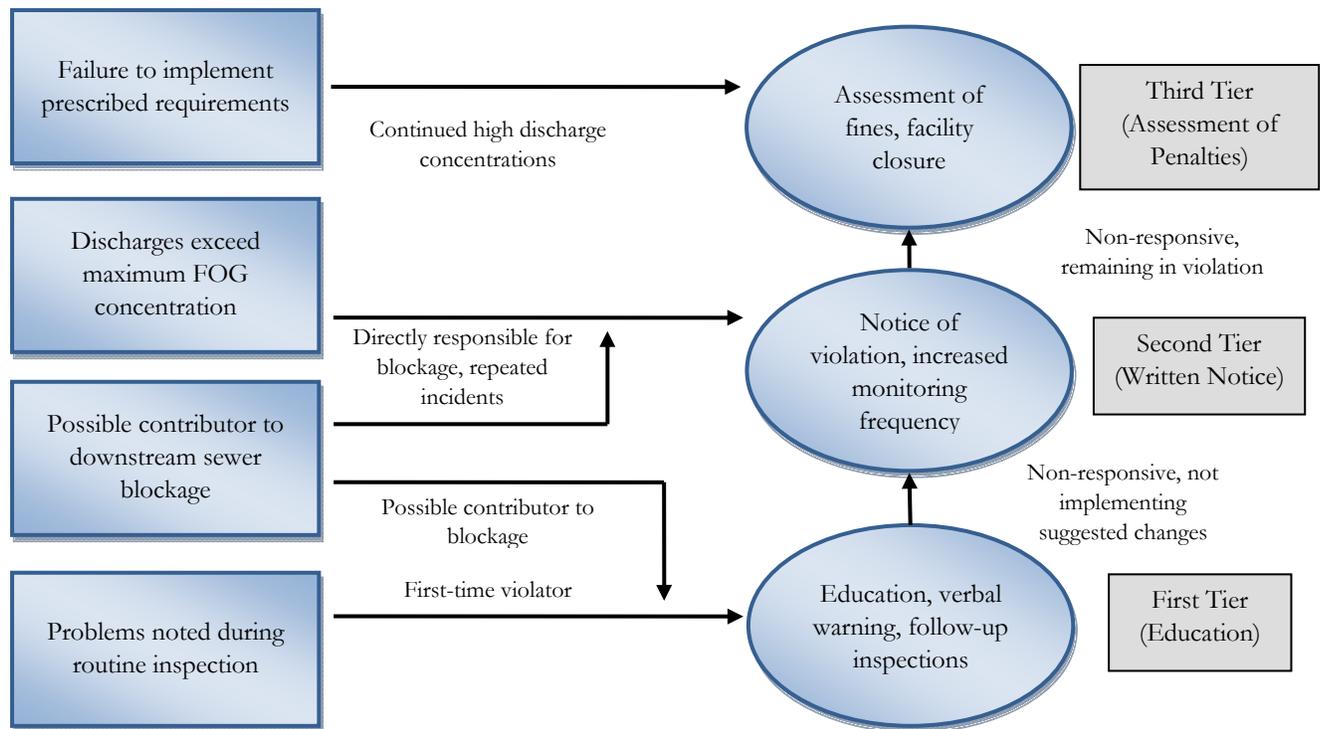


Figure 7. FOG follow-up procedures

H. Public Education Outreach

In some instances, residential areas can also contain hot spots or contribute to FOG buildup in the collection systems. Public education outreach can aid in reducing the amount of FOG discharged into the system. This outreach should be similar to that of outreach to FSEs. However, the majority of the outreach should be in the form of bill stuffers and other educational methods such as visits to schools or advertisements.

SECTION 6 – SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

A. Introduction

The primary purpose of a System Evaluation and Capacity Assurance Plan (SECAP) is to assure that the wastewater collection system has adequate capacity to serve the existing connections and those projected in the future. The plan includes the evaluation of the wastewater collection system’s hydraulic capacity, identification of system deficiencies, and a Capital Improvement Plan (CIP) which contains an appropriate model and short and long term schedules to address system deficiencies.

The requirements of the SECAP are addressed in the latest update of the Washington City Wastewater Master Plan (WWMP). This section summarizes the information provided in that plan. The latest update of the plan was completed in September, 2009.

B. Land Use Data & Demands on the System

The first step to determining whether the collection system has the capacity to serve the existing and future connections to the system is determining the current and future demands on the system. The table to the right shows the average population per residential unit, design flow, and the factor of equivalent residential units (ERU) per connection. The majority of land use data used in the master plan derives from the Washington City General Plan updated by Winston and Associates in 2004. The design flow of 250 gallons per capita per day is the peak design flow specified in the Washington City Construction Design Standards (see Section 2 of the Washington City WWMP).

Table 8. Land Use Data

LAND USE ASSUMPTIONS BASED ON WASHINGTON GENERAL PLAN	
* AVERAGE POPULATION PER RESIDENTIAL UNIT:	
-	2.88 (capita/ERU)
* DESIGN FLOW:	
-	250 (gal/capita/day)
-	0.5 (gpm/ERU)
* RESIDENTIAL UNIT PER CONNECTION:	
-	1.248 (ERU/connection)

C. Population Projections & Wastewater System Model

Part of developing a wastewater system model is the delineation of collection basins and sub-basins. A summary of the collection basin and sub-basin growth rates and estimated connections is shown in Appendix H (Table H.1). Also included in Appendix H is a summary of the wastewater design flows for each basin and sub-basin (Table H.2) and a map of the basins and sub-basins utilized in the master plan. The populations for each basin and sub-basin were projected for a 5 year, 10 year, and 15 year analysis. The average percentage population increase per year is shown to the table on the right for years 1-5, years 6-10, and years 11-20. Table H.1 also shows the percentage population increase assumed for each basin and sub-basin. The design criteria utilized in the wastewater system model is shown in the table to the right

Table 9. Wastewater System Model

WASHINGTON CITY WASTEWATER SYSTEM MODEL	
* DELINEATION OF BASIN & SUB-BASINS	
* GROWTH RATE PROJECTIONS FOR INDIVIDUAL SUB-BASINS:	
-	5.44% (5-yr overall)
-	6.90% (10-yr overall)
-	6.85% (20-yr overall)
* APPLICATION OF COMPUTER MODEL BASED ON STANDARD DESIGN CRITERIA:	
-	Pipe 2/3 Full
-	Manning's "n" value of 0.012
-	2.0 fps Minimum Flow Velocity
-	15.0 fps Maximum Flow Velocity
-	Pipe Flow Line 10' Below Ground Elevation

(See Section 3 of the Washington City WWMP).

D. Existing Facilities

Important to understanding the improvements needed in the collection system is knowing the existing facilities in the wastewater collection system. The majority of the wastewater collection system consists of a gravity flow pipe network.

In some instances, where gravity flow is not possible, it is necessary to utilize lift stations and force mains to transport the water in the collection system. Four lift stations currently operate in Washington City. The Coral Canyon lift station, with its corresponding 10-inch force main, lifts wastewater effluent produced in the Coral Canyon area (collection basin R-6) over the Washington Black Ridge to the gravity system on Telegraph Road in collection sub-basin R-5-9. The second existing lift station is the Ridge Pointe station which forces wastewater flows from lower areas of collection sub-basin R-5-10 to the existing gravity line in Telegraph Road. The third station, called the Sienna Hills lift station, is near the Grapevine Wash in collection sub-basin R-5-8. This station boosts water from the low point in the wash (sub-basin R-5-8) to the existing wastewater line in Telegraph Road. The fourth station is called the Highland Park lift Station (See Section 4 of the Washington City SSMP).

Table 10. Existing Wastewater Facilities

WASHINGTON CITY WASTEWATER SYSTEM FACILITIES	
*	GRAVITY WASTEWATER SYSTEM MOST DESIREABLE MEANS OF MOVING WASTEWATER
*	EXISTING LIFT STATIONS:
	- Coral Canyon Lift Station
	- Ridge Pointe Lift Station
	- Sienna Hills Lift Station
*	ADDITIONAL PROPOSED LIFT STATIONS
*	WASTEWATER DEPARTMENT FACILITY
*	COMMUNITY WASTEWATER TREATMENT SYSTEMS
	- Necessary in Development Southeast of Coral Canyon (<i>Basins R-7, R-8</i>)
	- All Washington City Wastewater Currently Going to Regional Treatment Plant

E. Recommended System Improvements

If proposed portions of the total wastewater system are constructed as shown in this master plan study, three additional lift stations may be built. Also, there are some areas in the City where, due to the area being topographically isolated from regional wastewater treatment facilities, it is most feasible to construct small community wastewater treatment systems. The developments planned in wastewater collection basins R-7 and R-8 in Washington City are examples of small communities needing specialized wastewater treatment facilities. Although these small community wastewater treatment systems may be needed in the future, currently all Washington City wastewater is directed to the Regional Treatment Plant.

The 2009 WWMP update looked at three scenarios based on projected growth: 10 year, 20 year and buildout scenarios. For this plan, City staff elected to analyze the system using a dual line scenario. In areas where a 15-inch pipe or larger is required, dual lines were recommended. For areas where pipes smaller than 15 inches are required, single pipes would be installed.

Maps of the recommended improvements are shown in Appendix H for the 10 year and 20 year scenarios. The system map was divided into three areas: North Area, South (A) Area, and South (B) Area. The North section covers all existing and new development north of the Virgin River. The South (A) section contains much of the Washington Fields area and east. The South section (B) includes mostly new and developable areas in the southern edge of the study area boundary. A summary of the recommended improvements is also included in Table 11 and Table 12 on the following page. Buildout recommendations were also included in the WWMP but are not included in the SECAP (See Section 5 of the Washington City WWMP).

Table 11. 10-yr Recommended System Improvements

RECOMMENDED SYSTEM IMPROVEMENTS 10-YR ANALYSIS
<p>* RECOMMENDED IMPROVEMENTS TO EXISTING SYSTEM:</p> <p>VIRGIN RIVER NORTH</p> <ul style="list-style-type: none"> - 300 East: New 10" Parallel Line - 100 East (Millcreek X-ing): New 15" Parallel Line - Industrial Road: New 21" Parallel Line <p>* RECOMMENDED IMPROVEMENTS DUE TO NEW DEVELOPMENT:</p> <p>WASHINGTON DAM AREA (SOUTH A)</p> <ul style="list-style-type: none"> - New Sewer Pump Station w/ 6" Force Flow - New 15" Single Line - New 12" Single Line - New Wastewater Department Facility <p>WASHINGTON FIELDS SOUTH (SOUTH B)</p> <ul style="list-style-type: none"> - New 10" Single Line - New 12" Single Line - New 15" Single Line <p>WASHINGTON FT. PIERCE/AIRPORT (SOUTH B)</p> <ul style="list-style-type: none"> - New 15" Single Line - New 10" Single Line

Table 12. 20-yr Recommended System Improvements

RECOMMENDED SYSTEM IMPROVEMENTS 20-YR ANALYSIS
<p>* RECOMMENDED IMPROVEMENTS TO EXISTING SYSTEM:</p> <p>VIRGIN RIVER NORTH</p> <ul style="list-style-type: none"> - Main Street: New 10" Parallel Line - 300 South: New 12" Parallel Line - Industrial Road: New 24" Parallel Line <p>VIRGIN RIVER SOUTH</p> <ul style="list-style-type: none"> - Regional Pipe: New 18" Parallel Line <p>* RECOMMENDED IMPROVEMENTS DUE TO NEW DEVELOPMENT:</p> <p>WASHINGTON DAM AREA (SOUTH A)</p> <ul style="list-style-type: none"> - New Sewer Pump Station - New 6" Force Flow from Proposed 10-Year Pump Station to Proposed 20-Year Pump Station - New 6" Force Flow through Long Valley w/ 15" Gravity Flow - New 15" Single Line - New 12" Single Line - New 10" Single Line <p>WASHINGTON FIELDS SOUTH (SOUTH B)</p> <ul style="list-style-type: none"> - New 10" Single Line - New 12" Single Line - New 15" Single Line <p>WASHINGTON FT. PIERCE/AIRPORT (SOUTH B)</p> <ul style="list-style-type: none"> - New 10" Single Line - New 12" Single Line

F. Schedule of Improvements

A schedule of the improvements recommended by the WWMP is shown in Table 13. The schedule includes the recommended improvements determined by the 10-yr analysis broken into a percentage of the overall cost and general estimated costs for the 20 year analysis. The 10 year improvements are designated as Phase 1 and the 20 year improvements as Phase 2. A detailed breakdown of the estimated costs for the 10 year analysis is shown in Appendix H.

Table 13. Schedule of Improvements

Phase	Priority	Const. Year	Total Cost	
1	A	2010	\$2,589,750	(50% of 10-Yr Cost)
1	B	2014	\$1,294,875	(25% of 10-Yr Cost)
1	C	2016	\$1,294,875	(25% of 10-Yr Cost)
2	A	2020	\$2,000,000	(Estimated)
2	B	2024	\$2,000,000	(Estimated)
2	C	2028	\$2,000,000	(Estimated)

The costs for the future improvements would be financed through impact fees. Table 14 below shows a summary from the WWMP which displays the impact fee and system user rate analyses which were performed for the Washington City wastewater collection system (See Section 6 of the Washington City WWMP).

Table 14. Wastewater System Financials

WASHINGTON CITY WASTEWATER SYSTEM FINANCIALS	
* OPINION OF PROBABLE COST FOR RECOMMENDED IMPROVEMENTS	
- TOTAL 10-YR PROJECT COST - \$5,179,500	
* 10-YR PROJECT PHASING W/ ESTIMATED 20-YR PROJECTS	
* WASTEWATER IMPACT FEE ANALYSIS	
EXISTING DEBT SERVICE	
- \$1,883,000 = 95% Impact Fee Eligible (1999 Sewer Bond)	
PROPOSED 10-YR IMPROVEMENT PROJECTS	
- \$5,179,500 = 100% Impact Fee Eligible	
TOTAL IMPACT FEE ELIGIBLE COST	
- \$6,972,681	
NO. OF NEW ERUs DUE TO 10-YR GROWTH	
- 6,018 ERUs	
PROPOSED UNIFIED MAXIMUM IMPACT FEE FOR WASHINGTON CITY	
- \$1,159 per ERU	
* SYSTEM USER RATES ANALYSIS	
EXISTING USER RATES	
- \$11.20 /ERU/Month: North of River	
- \$13.20 /ERU/Month: South of River	
RECOMMENDED UNIFIED USER RATE	
- \$12.65 /ERU/Month: Washington City	
SURCHARGE	
- \$14.30 /ERU/Month: St. George Treatment	
- \$4.60 /ERU/Month: Coral Canyon	
- \$10.68 /ERU/Month: Ridge Point	
- \$4.60 /ERU/Month: Sienna Hills	
* CASH FLOW ANALYSIS	

It is projected that when the recommended improvements are completed, the wastewater collection system will have adequate capacity for future population growth, reduced I/I, and an overall more reliable system.

SECTION 7 – MONITORING, MEASUREMENT, AND MODIFICATIONS

A. Performance Indicators

A key component of a plan is monitoring the effectiveness of the plan. This is generally done by way of performance indicators. The performance indicators to be used in this plan are as follows:

- The frequency of cleaning sewer lines.
- The frequency of SSOs.
- The general performance of responding to SSOs as determined from SSO reports.
- The number of SSOs caused by FOG.
- The number of FOG violations from FSEs.

The performance indicators should be evaluated annually to ensure that the plan is being implemented correctly and that it is effective.

B. Program Audits

Program audits should include the following:

- Looking at the success of the program;
- Cutting out an extra or unnecessary elements of the program;
- Determine areas that are worthy of doubled efforts;
- Consider input from several perspectives.

C. Periodic Revisions

This Sewer System Management Plan should be revised periodically to ensure that information is up to date. It is recommended that this plan be reviewed and revised following each revision of the WWMP, or approximately every five years. However, aspects of the plan such as databases and reports should be continuously updated by City personnel.

APPENDIX A

SEWER COLLECTION SYSTEM USE ORDINANCES

Chapter 4

SEWER SERVICE REGULATIONS

7-4-1: SEWER DEPARTMENT AND SYSTEM:

- A. Created: The sewer department is hereby created. It shall comprise all of the property, equipment and personnel necessary to the maintenance and operation of the city sewage collection and disposal system. The department shall administer the operation and maintenance of the city sewer system. (1989 Code § 14-211)
- B. Superintendent: The director of the department of public works shall be designated as the superintendent of the sewer department. (1989 Code § 14-212)
- C. Duties Of Superintendent: The superintendent of the sewer department shall manage and supervise the city sewer system under the general supervision of the city manager and in accordance with city policies and procedures. (1989 Code § 14-213)
- D. City Engineer: The person appointed by the municipality to be the municipal engineer or the person designated to act for and in behalf of the city. (2007 Code)

7-4-2: NONOWNER APPLICANTS:

Application for sewer service must be made by the tenant desiring service on forms provided by the city. The monthly sewer bill for said service will be automatically mailed to the owner of the premises or his duly authorized agent; however, the owner may choose to have the monthly bill sent directly to the tenant, in which case the owner shall sign a statement guaranteeing payment of said bill. The statement shall be in substantially the following form:

In consideration of the acceptance of the application for sewer service submitted by (tenant), I or we will pay for all sewer services for any such tenant or any other occupant of _____ premises in case such tenant or occupant shall fail to pay for the same according to the ordinances, rules, regulations or resolutions enacted by the city.

Dated this _____ day of _____, _____.

Owner

(1989 Code § 14-215)

7-4-3: RATES AND FEES; DELINQUENCY:

- A. Rates And Connection Fees: The rates, penalty fee for delinquency in payment and connection fees for sewer services from the city sewer system shall be fixed from time to time by resolution or ordinance of the governing body. The governing body may from time to time enact rules for levying, billing, guaranteeing and collection charges for sewer services and all other rules necessary for the management and control of the sewer system. All connections to the city sewer system shall be classified as residential or as commercial. Each residential connection shall be billed a minimum of one equivalent residential unit (ERU). Each commercial connection shall be billed based upon a determined number of ERUs. ERUs shall be based upon metered water usage for interior use during the months of December, January and February. One ERU is equivalent to six thousand (6,000) gallons per month. Connection shall be reviewed annually and ERUs and rates adjusted as required to assure adequate revenue to cover cost incurred. (Ord. 99-16, 6-9-1999; amd. 2007 Code)
- B. Special Rates: The governing body may from time to time fix by agreement or resolution special rates and conditions upon such terms as they may deem proper for users of the sewer service discharging wastes of unusual characteristics or making use thereof under exceptional circumstances. (1989 Code § 14-217)
- C. Board Of Equalization For Sewer Rates: The governing body is hereby constituted a board of equalization of sewer rates to hear complaints and make corrections of any assessments or charges deemed to be illegal, unequal or unjust. (1989 Code § 14-218)
- D. Delinquency; Discontinuance Of Service:
1. The utility billing department, or such other persons as the governing body may designate, shall furnish to each user or mail or leave at his place or residence or usual place of business, a written or printed statement stating the sewer service charges assessed against him once each month or at such other regular intervals as the governing body shall direct. The statement shall specify the amount of the bill, the place of payment and the date due. (Ord. 99-3, 2-10-1999; amd. 2007 Code)
 2. If any person fails to pay his sewer charges within thirty (30) days of the date due, the city recorder or the sewer superintendent shall give the customer notice in writing of the intent to discontinue the service of water to the premises unless the customer pays the bill in full within five (5) days from the date of notice.
 3. If the water service is thereafter discontinued for failure to make payment of the sewer service charges, before the water service to the premises shall again be provided, all delinquent sewer charges must have been paid to the city treasurer or arrangements made for their payment that are satisfactory to the city.
 4. In the event water is turned off for nonpayment of sewer charges, before the water service to the premises shall again be provided, the customer shall pay, in addition to all

delinquent and interest charges, such extra charge for turning the water on and off as the governing body may have established by resolution or ordinance.

5. If any person fails to pay his sewer charges within thirty (30) days of the due date, the city recorder or the sewer supervisor is hereby authorized to take all action necessary to enforce collection, including, but not limited to, the commencement of legal proceedings in a court of proper jurisdiction seeking judgment for the amount of the delinquent fees, service charges, interest charges, and all costs of collection, including court costs and attorney fees. (Ord. 99-3, 2-10-1999)

E. Sewer Inspection Fees:

1. The following sewer inspection fee schedule is hereby imposed:

Lateral Size	Inspection Fee
4 inches	\$150 .00
6 inches	200 .00
Over 6 inches	250 .00

2. The inspection fee is payable when a building permit is obtained, or when an existing structure is connected to the city wastewater system. The inspection fee is only payable if the property is, or can be, served by the city wastewater system. (Ord. 2000-5, 4-26-2000)

F. Capping Fee For Demolished Or Moved Buildings: In the case of building being demolished or moved, a fee of fifty dollars (\$50.00) will be charged for capping sewer line. Any additional costs incurred by the city as the result of above mentioned demolition or relocation, shall be assessed to the property owner at cost. (1989 Code § 14-241)

7-4-4: USE OF SYSTEM MANDATORY:

It shall be unlawful for the owner or any other person occupying or having charge of any premises within the city which is located within three hundred feet (300') of a sewer main to dispose of sewage therefrom by any means other than by use of the city sewer system. It shall be unlawful to construct or to continue the use of any other sewage disposal system such as a privy vault, cesspool or septic tank on the property except by written approval of the governing body in cases of undue hardship. (1989 Code § 14-220)

7-4-5: REGULATIONS AND REQUIREMENTS:

- A. **Qualified Plumbing Necessary:** It shall be unlawful for any person to connect any drain or sewer pipe with the city sewer system unless the person is a duly licensed plumber or unless, in the absence of a duly licensed plumber, any proposed connection to, alteration of, or change of connection to the sewer system shall be first submitted to the sewer superintendent for review and approval. After such approval, the installation or work done shall be subject to inspection by the superintendent or his agent. (1989 Code § 14-221)
- B. **Permits For Installations:**
1. **Required:** It shall be unlawful for any person to directly or indirectly engage in the laying, repairing, altering or connecting of any drain or sewer pipe connected with or part of the city sewer system without first having received a permit from the office of the city recorder or the sewer superintendent. (1989 Code § 14-222)
 2. **When Permits Shall Not Be Issued:** Permits to connect to the city sewer system shall not be issued unless the plumbing in the house or building to be connected is in accordance with the provisions of the building and plumbing codes of the city. (1989 Code § 14-223)
 3. **Revocation Of Permit:** All construction permits for sewer connections or installations shall be issued to the plumber who is to do the work or to the owner of the property, subject to the supervision and inspection by the superintendent or his agents. The city recorder or superintendent may at any time revoke a permit because of defective work or because of undue delay in completing the permitted work. (1989 Code § 14-224)
- C. **Pipes To Be Kept In Good Repair:** All users of the sewer services shall keep their service pipes, connections and other apparatus in good repair and protected from frost at their own expense. No person, except under the direction of the sewer superintendent, shall be allowed to dig into the street for the purpose of removing or repairing any sewer service pipe or main. (1989 Code § 14-225)
- D. **Quality Of Service Pipe:** All service and other pipes used in conjunction with the sewer services of the city shall be of such material, quality and specifications as the governing body may from time to time by resolution provide and shall be installed at such distances belowground as may be specified by regulations relating to the sewer department. All work, alterations or extensions affecting sewer pipes shall be subject to the acceptance of the sewer superintendent, and no connections with sewer mains shall be made without first obtaining a permit therefor from the city recorder. (1989 Code § 14-226)
- E. **Department To Have Free Access:** The sewer superintendent and his agents shall at all ordinary hours have free access to places supplied with sewer services from the city system for the purpose of examining the apparatus, ascertaining the sewer service being used and the manner of its use. (1989 Code § 14-227)
- F. **Trial Sewer Survey:** In order to determine the feasibility of connecting a basement or

proposed basement to the sanitary sewer, the owner or plumber may make application for a trial sewer survey, the cost of which shall be as established from time to time by resolution of the governing body. The result of a trial sewer survey shall not constitute a permit to connect to the sewer and is merely for information purposes. (1989 Code § 14-228)

G. Sewer Manholes: It shall be unlawful for any person to open any sewer manhole without permission from the superintendent. (1989 Code § 14-234)

H. Destruction: It shall be unlawful for any person to destroy, deface, injure or interfere with the operation of any part or appurtenance of the sewer system. (1989 Code § 14-235)

I. Power To Adopt Regulations: The governing body shall have the power to and retains the right to adopt regulations controlling the manner and circumstances under which the sewer system may be used, in addition to the regulatory provisions set forth expressly in this chapter. (1989 Code § 14-232)

7-4-6: PROHIBITED USES:

A. Inflammables: It shall be unlawful for any person to injure, break or remove any part or portion of any sewer appliance or appurtenance, or to discharge into a sewer any inflammable gas, gasoline or oil, any calcium carbide or residue therefrom, or any liquid or other materials or substance which will emit an inflammable gas when in contact with water, sewage or fire. Oil separators installed in any building where volatile fluids are used must not be connected directly or indirectly with a sewer.

B. Waste Pipes From Enumerated Establishments: The contents of waste pipes from water filters, gas engines, air compressors, vacuum or dry cleaners, garages, wash racks, stores or warehouses containing inflammable substances, car barns, buildings for the stabling or keeping of horses, cows and other animals, or plants using milk or processing milk products and all similar establishments shall not be disposed of through connection with a sanitary sewer unless such contents are discharged into settling tanks properly trapped and vented. The construction of such tanks must be approved by the city engineer, and must be subject to his inspection, approval or condemnation before cement is poured and at all times thereafter until completion of such construction. Upon condemnation by the city engineer, the sewage from the tanks shall not be allowed to flow into the sewer until satisfactory alterations have been made and the construction approved by the city engineer.

C. Obstructive Material: It shall be unlawful for any person to empty or discharge into the public sanitary sewer any garbage, refuse or other similar matter or substance likely to obstruct the sewer, or any substance, solid or liquid other than the waste products for which the

sewer is provided. (Ord. 99-3, 2-10-1999)

D. Drainage Waters And Destructive Materials: It shall be unlawful for any person to connect with a public sanitary sewer any drain or pipe which discharges rain, water, cellar or surface water, acids, alkalies, lye or other injurious liquids, or the contents of any spring, flowing well, creek, ditch, or other watercourse. No boiler or heating plant shall be directly connected to the sanitary sewer. The overflow from boilers or heating plants when cooled to a temperature not to exceed one hundred twenty degrees Fahrenheit (120°F), will be allowed to run to a sump, which sump shall be connected to the sewer. The discharge of the contents of waste pipes from water filters, gas engines, air compressors, vacuum or dry cleaners, garages, wash racks, stores or warehouses which contain inflammable substances, buildings for the stabling or keeping of horses, cows and other animals, and all similar establishments, shall not be made into or connected with a sanitary sewer, unless such contents are discharged into settling tanks properly trapped and vented. Settling tanks shall be constructed of a material approved by the city engineer and shall be at all times subject to his inspection and approval or condemnation. Upon condemnation by the city engineer, the sewage from said tanks shall not be allowed to flow into sewer until satisfactory alterations have been made and the construction approved by the city engineer. (Ord. 99-3, 2-10-1999; amd. 2007 Code)

E. Pretreatment Regulations: All discharges into the sewer system must meet all pretreatment requirements of [chapter 5](#) of this title. (Ord. 99-3, 2-10-1999)

7-4-7: OWNERSHIP OF CONNECTING LINES:

Unless provision is expressly made for ownership of mains or lines by the owner of the adjacent property by means of written agreement, all lines and mains connecting the sewer system to a landowner or resident's premises which are situated on the public way between the main and the property line shall be deemed to be the property of the city and subject to its absolute control and supervision even though actual installation may have been performed by the owner or resident of the premises. (1989 Code § 14-233)

7-4-8: EXTENSION OF MAINS:

A. Application: Any person or persons, including any subdivider, who desires to have the sewer mains extended within the city, and is willing to advance the whole expense of such extension and receive the return of an agreed portion thereof, as hereinafter provided, may make application to the governing body by petition. The petition shall contain a description of such proposed extension, accompanied by a map showing the location of the proposed extension, together with an offer to advance the whole expense thereof, which cost shall be verified by the sewer superintendent. The governing body may grant or deny the petition as in its discretion deems best for the welfare of existing sewer users in the city. (1989 Code

§ 14-236)

- B. **Cost Of Extension Determined:** Upon the receipt of such petition and map and before the petition is granted, the governing body shall obtain from the sewer superintendent a certified statement showing the whole cost of expense of making such extension. (1989 Code § 14-237)
- C. **Amount Of Cost Deposited:** If the governing body grants the petition, the amount of the cost of making the extension, as certified by the superintendent, shall be deposited with the city recorder before any work shall be done on such extension. The deposit shall be made within thirty (30) days, or such other time as the governing body shall indicate, after the granting thereof. (1989 Code § 14-238)
- D. **Return Of Money; Forfeiture:**
1. At the time the governing body decides whether or not to grant the petition for an extension, it shall also decide whether or not any portion of the costs is to be refunded and the manner and circumstances under which such refund shall be made or credited to the applicant, his successors or representatives. Such determination shall be duly recorded in writing and a copy thereof furnished to the applicant.
 2. In the event any deposit remains unclaimed for a period of five (5) years after the depositor has discontinued water service, the deposit may be forfeited and then transferred to the sewer utility fund. (1989 Code § 14-239)
- E. **Ownership Of Extension:** Any such extension shall be deemed the property of the city. (1989 Code § 14-240)

Chapter 5

WASTEWATER/PRETREATMENT REGULATIONS

7-5-1: PURPOSE AND POLICY; APPLICABILITY:

- A. **Objectives:** This chapter sets forth uniform requirements for users of the publicly owned treatment works (POTW) for the St. George wastewater region and enables the city to comply with all applicable state and federal laws, including the clean water act (33 USC 1251 et seq.), the general pretreatment regulations found in the U.S. code of federal regulations (CFR) 40 CFR part 403, and the Utah administrative code R317-8-8. The objectives of this chapter are to:

1. Prevent the introduction of pollutants into the POTW that could interfere with the operation of the POTW;
 2. Prevent the introduction of pollutants into the POTW which could pass through the POTW, inadequately treated, into receiving waters or otherwise be incompatible with the POTW;
 3. Ensure that the quality of the wastewater treatment plant sludge is maintained at a level which allows its use and disposal in compliance with applicable statutes and regulations found in 40 CFR part 503;
 4. Protect POTW personnel who may be affected by wastewater and sludge in the course of their employment and to protect the general public;
 5. Improve the opportunity to recycle and reclaim wastewater and sludge from the POTW;
 6. Authorize the city of St. George to act, on behalf of Washington City, in the issuance of wastewater discharge permits, compliance monitoring and enforcement of this chapter;
 7. Enable the city of St. George, on behalf of Washington City, to assess fees, fines and surcharges for the equitable distribution of the cost of operation, maintenance and improvement of the POTW, and the pretreatment program;
 8. Enable the POTW to comply with its Utah pollution discharge elimination system permit (UPDES) conditions, sludge use and disposal permit conditions, and any other federal or state laws to which the POTW is subject.
- B. Applicability: This chapter shall apply to all users of the POTW which are subject to pretreatment regulations. This chapter authorizes issuance of wastewater discharge permits; authorizes monitoring, compliance and enforcement activities; establishes administrative review procedures; requires industrial user reporting and provides for the setting of fees for the equitable distribution of costs resulting from the program established herein. (Ord. 99-2, 1-27-1999)

7-5-2: ADMINISTRATION:

Except as otherwise provided herein, the St. George wastewater division manager or designee (hereinafter "manager"), shall administer, implement and enforce the provisions of this chapter. (Ord. 99-2, 1-27-1999)

7-5-3: DEFINITIONS:

Unless a provision explicitly states otherwise, the following terms and phrases, as used in this chapter, shall have the meanings hereinafter designated. "Shall" is mandatory; "may" is

permissive or discretionary. The use of the singular shall be construed to include the plural and the plural shall include the singular as indicated by the context of its use.

ACT: The federal water pollution control act, also known as the clean water act, as amended, 33 USC 1251 et seq.

APPROVAL AUTHORITY: The executive secretary of the water quality board as the authorized agent for the state of Utah, which has an approved state pretreatment program, or his designee.

AUTHORIZED REPRESENTATIVE OF THE INDUSTRIAL USER OR AUTHORIZED REPRESENTATIVE: A. If the industrial user is a corporation, "authorized representative" shall mean:

1. The president, secretary, treasurer or a vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation;
2. The manager of one or more manufacturing, production or operation facilities, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

B. If the industrial user is a partnership or sole proprietorship, an authorized representative shall mean a general partner or proprietor, respectively;

C. If the industrial user is a federal, state or local governmental facility, an authorized representative shall mean a director or highest official appointed or designated to oversee the operation and performance of the activities of the government facility or his/her designee;

D. The individuals described in subsections A through C of this definition may designate another authorized representative if the authorization is in writing, the authorization specifies the individual or position responsible for the overall operation of the facility from which the discharge originates or having overall responsibility for environmental matters for the company, and the written authorization is submitted to the manager.

CATEGORICAL PRETREATMENT STANDARD OR CATEGORICAL STANDARD: Any regulation containing pollutant discharge limits promulgated by the U.S. EPA in accordance with sections 307(b) and (c) of the act (33 USC 1317), which apply to a specific category of industrial users and which appear in 40 CFR chapter I, subchapter N, parts 405-471.

ENVIRONMENTAL PROTECTION AGENCY OR EPA: The U.S. environmental protection agency or, where appropriate, the term may also be used as a designation for the manager or other duly authorized official of said agency.

EXISTING SOURCE: Any source of discharge, the construction or operation of which commenced prior to the publication of proposed categorical pretreatment standards which will be applicable to such source if the standard is thereafter promulgated in accordance with section 307 of the act.

GOVERNING AGENCY: Washington City, the city council for Washington City, and authorized city employees, or such other persons as may be designated. Referred to herein as the "city".

INDIRECT DISCHARGE (DISCHARGE): The introduction of pollutants into the POTW from any nondomestic source regulated by the UPDES program and/or the U.S. water quality act section 307(b), (c) and (d).

INDUSTRIAL USER (USER): A source of indirect discharge.

INSTANTANEOUS MAXIMUM ALLOWABLE DISCHARGE LIMIT: The maximum concentration (or loading) of a pollutant allowed to be discharged at any time, determined from the analysis of any sample collected.

INTERFERENCE: A discharge which, alone or in conjunction with a discharge or discharges from other sources: a) inhibits or disrupts the POTW; and/or b) causes a violation of the POTW's UPDES permit or prevents sewage sludge use or disposal in compliance with any of the following statutory/state or local regulations: section 405 of the clean water act; the solid waste disposal act (SWDA), including title II (commonly referred to as the resource conservation and recovery act (RCRA)); 40 CFR part 503 governing the use and disposal of sewage sludge; the clean air act; the toxic substances control act; and the marine protection, research and sanctuaries act.

LOCAL LIMITS: Limits on characteristics of water discharged into the POTW as determined in the local limits study for the St. George regional water reclamation facility.

MANAGER: The city of St. George wastewater division manager or designee.

MEDICAL WASTE: Isolation wastes, infectious agents, human blood and blood byproducts, pathological wastes, sharps, body parts, fomites, etiologic agents, contaminated bedding, surgical wastes, potentially contaminated laboratory wastes and dialysis wastes.

NEW SOURCE: A. Any building, structure, facility or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the publication of proposed pretreatment standards under section 307(c) of the act which will be applicable to such source if such standards are thereafter promulgated in accordance with that section; provided, that:

1. The building, structure, facility or installation is constructed at a site at which no other source is located; or
2. The building, structure, facility or installation totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or
3. The production or wastewater generating processes of the building, structure, facility or installation are substantially independent of an existing source at the same site.

B. Construction on a site at which an existing source is located results in a modification rather than a new source if the construction does not create a new building, structure, facility or installation meeting the criteria of subsection A1 or A3 of this definition, but otherwise alters, replaces or adds to existing process or production equipment.

C. Construction of a "new source", as defined, has commenced if the owner or operator has begun, or caused to begin, as part of a continuous on site construction program:

1. Any placement, assembly or installation of facilities or equipment;
2. Significant site preparation work, including clearing, excavation or removal of existing buildings, structures or facilities, which is necessary for the placement, assembly or installation of new source facilities or equipment;
3. Entered into a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering and design studies do not constitute a contractual obligation under this definition.

NONCONTACT COOLING WATER: Water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product or finished product.

PASS-THROUGH: A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the UPDES permit (including an increase in the magnitude or duration of a violation).

PERSON: Any individual, partnership, copartnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity or any other legal entity, or their legal representatives, agents or assigns. This definition includes all federal, state or local governmental entities.

pH: A measure of the acidity or alkalinity of a substance, expressed in standard units.

POLLUTANT: Any dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, medical wastes, chemical wastes, industrial wastes, biological materials, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt, agricultural and industrial wastes, and the characteristics of the wastewater (i.e., pH, temperature, TSS, turbidity, color, BOD, chemical oxygen demand, toxicity, odor).

PRETREATMENT: The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of introducing such pollutants into the POTW. The reduction or alteration may be obtained by physical, chemical or biological processes, process changes, or any other means, except as prohibited by 40 CFR 403.6(d).

PRETREATMENT OPERATING PLAN: The operating plan approved by the city of St. George and made a part of this chapter by reference herein, for the purpose of managing and regulating discharges into the POTW.

PRETREATMENT REQUIREMENTS: Any substantive or procedural requirement related to pretreatment imposed on an industrial user, other than a national pretreatment standard.

PRETREATMENT STANDARDS OR STANDARDS: Categorical pretreatment standards, state

pretreatment requirements and local limits established by the St. George regional water reclamation facility.

PROGRAM ADMINISTRATOR: The person designated by Washington City to administer this chapter and the pretreatment program, and who is charged with certain duties and responsibilities by this chapter.

PROHIBITED DISCHARGE STANDARDS OR PROHIBITED DISCHARGES: Absolute prohibitions against the discharge of certain substances or wastewater characteristics; these prohibitions appear in section [7-5-8](#) of this chapter.

PUBLICLY OWNED TREATMENT WORKS (POTW): A treatment works which is owned by the state, a municipality or other political subdivision of the state. This definition includes any devices or systems used in the collection, storage, treatment, recycling and reclamation of municipal/domestic sewage or industrial wastes of a liquid nature discharged into the stated system. Also included are any conveyances, such as pipelines, conduits or channels which convey wastewater to a treatment plant. The term also means the municipal entity having jurisdiction over the indirect discharges to such a system and the discharges from the treatment works. For purposes of this chapter, POTW refers to the St. George regional water reclamation facility and associated collection system.

SEPTIC TANK WASTE: Any sewage from holding tanks, such as vessels, chemical toilets, campers, trailers and septic tanks, containing sanitary waste generated by domestic use. "Septic tank waste" does not include waste from interceptors for grease and oils whether in the ground or under the sink. (An interceptor is a receiving system that consists of 2 or 3 stages, which causes reduction in the flow rate of the effluent thus increasing the separation of solids and oils prior to discharge of the effluent into the sewer system.)

SEWAGE: Human excrement and gray water (household showers, dishwashing operations, etc.).

SIGNIFICANT INDUSTRIAL USER: Shall apply to: a) industrial users subject to categorical pretreatment standards; and b) any other industrial user that: 1) discharges an average of twenty five thousand (25,000) gpd or more of process wastewater (excludes sanitary, noncontact cooling and boiler blowdown wastewater); 2) contributes a process waste stream which makes up five percent (5%) or more of the average dry weather hydraulic or organic capacity of the treatment plant; or 3) is designated as significant by the manager. The manager may determine that a user is significant if there is a reasonable potential for the user to adversely affect the POTW's operation, if the user's effluent has reached pollutant levels exceeding seventy five percent (75%) of the established local limits for that industrial user, or if the user violates any pretreatment standard or requirement. Upon a finding that an industrial user meeting the criteria of significant industrial user has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the manager may at any time, on his own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

SLUG LOAD/DISCHARGE: Any discharge at a flow rate or concentration which could cause a violation of the prohibited discharge standards in section [7-5-8](#) of this chapter, or any discharge of a nonroutine, episodic nature, including, but not limited to, an accidental spill or a noncustomary batch discharge.

STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODE: A classification pursuant to the "Standard Industrial Classification Manual" issued by the U.S. office of management and budget.

STORM WATER: Any flow which occurs during, or following any form of natural precipitation, and results from such an event, including snowmelt.

TOTAL SUSPENDED SOLIDS (TSS): The total suspended matter that floats on the surface of, or is suspended in, water, wastewater or other liquid, and which is removable by laboratory filtering.

TOXIC POLLUTANTS: Pollutants, or combinations of those pollutants, listed as toxic in regulations promulgated by the EPA under the provision of section 307 (33 USC 1317) of the act.

TREATMENT PLANT EFFLUENT: Any discharge from the POTW into waters of the state of Utah or waters of the United States.

WASTEWATER: Liquid and water carried industrial wastes, and sewage from residential dwellings, commercial buildings, industrial and manufacturing facilities, and institutions, whether treated or untreated, which are contributed to the POTW.

WASTEWATER TREATMENT PLANT OR TREATMENT PLANT: That portion of the POTW designed to provide treatment, including recycling and reclamation of sewage and industrial waste. (Ord. 99-2, 1-27-1999)

7-5-4: ABBREVIATIONS:

The following abbreviations shall have the designated meanings. Some of the abbreviations are included in the definition section, but are repeated here for the sake of clarity.

BOD	Biochemical oxygen demand
CFR	Code of federal regulations
COD	Chemical oxygen demand
EPA	U.S. environmental protection agency
gpd	Gallons per day
l	Liter
mg	Milligrams
mg/l	Milligrams per liter
NPDES	National pollutant discharge elimination system or the Utah pollutant discharge elimination system
O&M	Operation and maintenance

POTW	Publicly owned treatment works
RCRA	Resource conservation and recovery act
SIC	Standard industrial classification
SWDA	Solid waste disposal act (42 USC 6901 et seq.)
TSS	Total suspended solids
USC	United States code

(Ord. 99-2, 1-27-1999)

7-5-5: APPLICATION FOR WASTEWATER SERVICE:

Any person desiring, or who is required, to secure wastewater services, when such service is available from the city, shall apply therefor to the public works director, or to such other person designated by the public works director, and shall pay the required fees before any wastewater connection is approved. By applying for a wastewater connection, such person agrees to be bound by this chapter and all applicable policies and regulations pertaining to the city POTW. (Ord. 99-2, 1-27-1999)

7-5-6: MANDATORY USE OF WASTEWATER SYSTEM:

A. Residential Dwelling Units:

1. It is mandatory that any residential dwelling unit not part of a subdivision development and which is located upon a lot having a property line within three hundred feet (300') of any public wastewater system shall be connected to the wastewater system at the expense of the owner or occupant thereof. Only where a city wastewater system is not available as set forth above, may a private wastewater system be utilized for a residential dwelling unit. Before commencement of construction of any private wastewater disposal system, the property owner or person seeking to install a private wastewater system shall submit plans, specifications and other information deemed necessary to the state department of health and obtain a written permit from them for installation thereof. The type, capacities, location and layout of a private wastewater disposal system shall comply with all requirements of the state department of health. The owner of a private wastewater disposal system shall at all times operate and maintain the same in a sanitary manner and at no expense to the city.
2. When in the discretion of the manager a private wastewater disposal system ceases to operate effectively or creates a sanitation hazard, and the property is within three hundred feet (300') of a public wastewater system, direct connection to the public wastewater system may be required by the manager, in which case the private wastewater disposal facilities shall be closed, disconnected and properly

decommissioned.

- B. Commercial And Industrial Units: It is mandatory that all commercial and industrial buildings requiring wastewater service and which are located upon a lot having a property line within three hundred feet (300') of any public wastewater system shall be connected to the public wastewater system at the expense of the owner or occupant thereof. In addition to other available enforcement actions, the city may enforce the wastewater connection requirements imposed in this section by disconnecting or refusing to supply the culinary water servicing the premises involved until proper connection to the wastewater system has been made.
- C. Residential Subdivision Developments: Residential subdivision developments are subject to city policy regarding use of and connection to the POTW, as well as this chapter. (Ord. 99-2, 1-27-1999)

7-5-7: GENERAL PROVISIONS:

- A. Ownership Of Connecting Lines: Unless provision is expressly made otherwise for ownership of laterals or lines by the owner of the adjacent property through a written agreement, all lines and laterals connecting the city POTW to a landowner's or user's premises shall be deemed to be the property of the landowner/user, and all operation and maintenance shall be at the owner's/user's expense. The city shall not be liable for blockage or flow interference in laterals or connecting lines before they connect to the city wastewater line.
- B. POTW Connections: Connection to or extension of the city wastewater main for use by a user shall be the sole responsibility of the user. Acceptance of any wastewater facility by the city for public use and maintenance shall not occur until such facility has been inspected and approved as to compliance with all city, state and federal requirements.
- C. Inspection Of POTW Connections: Any connection to, extension or modification of the wastewater system shall be under the direction of the public works director, and inspection of such shall be made by the appropriate inspector after installation in every case. No backfilling shall be done until the inspection is made and the work accepted. In the event of an installation, repair or alteration where no building permit is required, there shall be no connection, directly or indirectly, with the wastewater system without notification to and approval in advance from the public works director or his designated representative, as well as the inspection after installation required above. A reasonable inspection fee shall be paid for any inspection made under this section.
- D. Quality Of Installations And Maintenance: All wastewater mains, manholes, service laterals

and other materials used in conjunction with the wastewater system shall be of such quality and specifications as required by the "Washington City Standard Specifications For Design And Construction", as last revised. It shall be unlawful for any person to connect any drain or service line to the POTW system unless such person is a contractor properly licensed by the state. After installation, all private service pipes, connections and other apparatus shall be maintained in good repair at the user's expense. No person shall be allowed to dig into the street for purposes of installing, repairing or maintaining any service pipes, connections or other apparatus, except under the direction of the public works director or his designated personnel, who shall at all reasonable time have free access to drains and wastewater lines connecting with the wastewater system for the purpose of examination and inspection. (Ord. 99-2, 1-27-1999)

7-5-8: USE REQUIREMENTS:

A. Prohibited Discharge Standards:

1. No industrial user shall introduce or cause to be introduced into the POTW any pollutant or wastewater which may cause pass-through or interference. These general prohibitions apply to all users of the POTW, whether or not the source is subject to categorical pretreatment standards or any other national, state or local pretreatment standards or requirement. Furthermore, no user may contribute the following substances to the POTW, or any other substances prohibited by the pretreatment program:
 - a. Pollutants which create a fire or explosive hazard in the POTW system, including, but not limited to, waste streams with a closed cup flashpoint of less than one hundred forty degrees Fahrenheit (140°F) (60°C) using the test methods specified in 40 CFR 261.21.
 - b. Any pollutants which will cause, but in no case discharges with a pH of less than 5.0 or more than 11.0, corrosive structural damage to the POTW or equipment, or endangering city personnel, unless the POTW is specifically designed to accommodate such discharges.
 - c. Solid or viscous substances in amounts or sizes which will cause obstruction of the flow in the POTW resulting in interference.
 - d. Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the POTW.
 - e. Any wastewater having a temperature greater than one hundred eighty degrees Fahrenheit (180°F) (82°C), or which will inhibit biological activity in the treatment plant resulting in interference, but in no case heat in such quantity that it causes the temperature at the treatment plant to exceed one hundred four degrees Fahrenheit (104°F) (40°C).

- f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin, in amounts that will cause interference or pass-through.
 - g. Pollutants which result in the presence of toxic gases, vapors or fumes within the POTW in a quantity that may cause acute or chronic worker health and safety problems.
 - h. Any trucked or hauled pollutants, except at discharge points designated by the manager in accordance with subsection [7-5-9C](#) of this chapter.
 - i. Any noxious or malodorous liquids, gases, solids or other wastewater which, either singly or by interaction with other wastes, are sufficient to create a public nuisance, a hazard to life, or to prevent entry into the sewers for maintenance and repair.
 - j. Any wastewater which imparts color which cannot be removed by the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions, which consequently imparts color to the treatment plant effluent thereby violating the city of St. George UPDES permit. Color (in combination with turbidity) shall not cause the treatment plant effluent to reduce the depth of the concentration point for photosynthetic activity by more than ten percent (10%) from the seasonably established norm for aquatic life.
 - k. Any wastewater containing any radioactive wastes or isotopes, except as specifically approved by the manager in compliance with applicable state or federal regulations.
 - l. Storm water, surface water, ground water, artisan well water, roof runoff, subsurface drainage, swimming pool drainage, condensate, deionized water, noncontact cooling water, and unpolluted industrial wastewater, unless specifically authorized by the manager.
 - m. Any sludges, screening or other residues from the pretreatment of industrial wastes.
 - n. Any medical wastes, except as specifically authorized by the manager in a wastewater discharge permit.
 - o. Any wastewater causing the treatment plant effluent to fail a toxicity test.
 - p. Any wastes containing detergents, surface active agents or other substances which may cause excessive foaming in the POTW. (Ord. 99-2, 1-27-1999)
 - q. The limit of discharge for fats, oils and greases is defined in the pretreatment plan, which sets a general standard, but allows for exceptions as defined therein. (Ord. 99-17, 7-14-1999)
2. Pollutants prohibited by the pretreatment program shall not be processed or stored by the user in such a manner that they could be discharged to the POTW. All floor drains located in process or materials storage areas must discharge to the industrial user's pretreatment facility before connecting with the POTW. If the industrial user storing the specified pollutant does not have a pretreatment facility, floor drains shall be either plugged with concrete or valved. The valve shall be locked closed at all times and

opened only with written permission from the manager.

- B. Categorical Pretreatment Standards: The national categorical pretreatment standards found at 40 CFR chapter I, subchapter N, parts 405-471 are hereby incorporated.
- C. State Pretreatment Requirements: State of Utah pretreatment standards contained in the Utah administrative code R317-8-8 are hereby incorporated.
- D. POTW Local Limits: The POTW technically based local limits, as latest revised, are hereby incorporated. Local limits apply at the point where the industrial discharge is introduced to the POTW collection system before mixing with other wastewaters. All concentration limits for metallic substances are for "total" metal unless indicated otherwise. In addition to, or in place of, concentration based limitations, the manager may impose mass limitations.
- E. Right Of Revision: The city reserves the right to establish, by ordinance, in the pretreatment program, or in wastewater discharge permits, more stringent standards or requirements on any discharges or pollutants discharged to the POTW, if deemed necessary to comply with the objectives presented in section [7-5-1](#) of this chapter, or the general and specific prohibitions in subsection A of this section.
- F. Special Agreement: The city reserves the right to enter into special agreements with industrial users setting out special terms under which they may discharge to the POTW. In no case will a special agreement waive compliance with a pretreatment standard or requirement. Variances from pretreatment standards or requirements must be approved by federal, state and regional pretreatment authorities.
- G. Dilution: No industrial user shall increase the use of process water, or in any way attempt to dilute a discharge, as a partial or complete substitute for adequate treatment to achieve compliance with a discharge limitation, unless expressly authorized by an applicable pretreatment standard or requirement. The manager may impose mass limitations on industrial users which are using dilution to meet applicable pretreatment standards or requirements, or in other cases when the imposition of mass limitations is appropriate to ensure compliance with this chapter. (Ord. 99-2, 1-27-1999)

7-5-9: PRETREATMENT OF WASTEWATER:

A. Pretreatment Operations:

1. Industrial users shall provide wastewater treatment as needed to comply with this chapter, and shall achieve compliance with all the prohibitions stated in section [7-5-8](#) of

this chapter within the time limitations specified by the EPA, the state, or according to compliance schedules as specified by the manager, whichever is more stringent. Any facilities necessary for compliance shall be provided, operated and maintained at the industrial user's expense. Detailed plans showing the pretreatment facilities and operating procedures shall be submitted to the city or its designated representative for review, and shall be acceptable to the manager before a building permit for construction of the facility is issued. The review of such plans and operating procedures shall in no way relieve the industrial user from the responsibility of modifying the facility as necessary to produce an acceptable discharge under the provisions of this chapter and the regional pretreatment program. The manager may, by order of compliance or discharge permit, require specific equipment, capacities or processes to meet the intent of this chapter.

2. The manager may require industrial users to restrict their discharge during peak flow periods, designate certain wastewater be discharged only into specific sewers, relocate and/or consolidate points of discharge, separate municipal waste streams from industrial waste streams, and such other conditions as may be necessary to protect the POTW and secure the industrial user's compliance with the requirements of this chapter.
3. The manager may require pretreatment facilities to equalize flow, intercept grease, oil and sand, detect combustible gas, and control slug flows in accordance with the regional pretreatment program.
4. The manager may require a slug flow control plan in accordance with the regional pretreatment program.

B. **Tenant Responsibility:** Where an owner of property leases the premises to any other person as a tenant under any rental or lease agreement, if either the owner or the tenant is an industrial user, both shall be held responsible for compliance with the provisions of this chapter.

C. **Hauled Wastewater:** Hauled wastewater, including septic tank waste and industrial waste, may be accepted at the POTW at such times and under such conditions established in the pretreatment program or as determined by the manager. In addition, hauled wastes shall be subject to requirements established or adopted by the city of St. George.

D. **Vandalism:** No person shall maliciously, wilfully or negligently break, damage, destroy, uncover, deface, tamper with or prevent access to any structure, appurtenance or equipment, or other part of the POTW. Any person found in violation of this requirement shall be subject to the sanctions set out in sections [7-5-16](#) through [7-5-18](#) of this chapter. (Ord. 99-2, 1-27-1999)

7-5-10: DISCHARGE PERMIT:

- A. Application: The city, under this chapter, delegates responsibility for the pretreatment program, including issuance of local discharge permits for industrial users, to the manager, and adopts the pretreatment program as latest revised.
1. Industrial Waste Survey: When required by the manager, industrial users must submit information on the nature and characteristics of their wastewater by completing an industrial waste survey and/or a baseline monitoring report (as described in subsection [7-5-12A](#) of this chapter) prior to commencing discharge. The manager is authorized to prepare a form for this purpose. The manager may periodically require industrial users to update the survey or baseline monitoring report. Failure to complete these surveys or reports shall be grounds for revocation of the industrial user's permit or terminating service to the industrial user, and shall be considered a violation of this chapter. Violations of this chapter shall subject the industrial user to fines, fees, penalties and remedies set forth in sections [7-5-16](#) through [7-5-18](#) of this chapter.
 2. Application Contents:
 - a. All industrial users required to have a local wastewater discharge permit must submit an application, on a form approved by the manager, on which the industrial user provides information in accordance with the pretreatment program.
 - b. Incomplete or inaccurate applications will not be processed and shall be returned to the industrial user for revision. Should any of the information requested or supplied be considered by the industrial user to be of a confidential nature, the industrial user should request confidential status in accordance with section [7-5-14](#) of this chapter.
 - c. The manager will evaluate the data furnished on the application by the industrial user and may require additional information. Within thirty (30) days of receipt of a complete wastewater discharge permit application, the manager will determine whether to issue a wastewater discharge permit. The manager may deny for cause any application for a wastewater discharge permit. The basis for denial shall be provided to the industrial user.
 3. Certification: All local wastewater discharge permit applications and reports required by the local wastewater discharge permit shall contain the following certification statement and be signed by an authorized representative of the industrial user:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those people directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
- B. Wastewater Discharge Permit: The city, under this chapter, delegates responsibility for the pretreatment program, including issuance of local discharge permits for industrial users, to

the manager, and adopts the pretreatment program, as latest revised.

1. Wastewater Discharge Permit Requirement:

- a. It shall be unlawful for any industrial user required to have such a permit to discharge wastewater into the POTW without first obtaining a local wastewater discharge permit from the manager. Any violation of the terms and conditions of a wastewater discharge permit shall be deemed a violation of this chapter. Violators of this chapter shall be subject to the penalties and remedies set out in this subsection A1 and sections [7-5-16](#) through [7-5-18](#) of this chapter. A wastewater discharge permit does not relieve an industrial user of its obligation to comply with all federal and state pretreatment standards or requirements, nor with any other requirements of federal, state or local law.
- b. Within either one hundred eighty (180) days after the effective date of a categorical pretreatment standard, or the final administrative decision on a categorical determination under 40 CFR 403.6(a)(4), whichever is later, existing significant industrial users subject to such categorical pretreatment standards, and currently discharging to or scheduled to discharge to the POTW, shall be required to obtain a wastewater discharge permit.
- c. At least ninety (90) days prior to commencement of discharge, new sources and sources that become categorical or significant industrial users subsequent to the issuance of this chapter, shall be required to submit to the manager an application for a wastewater discharge permit. A new source shall also be required to report the method of pretreatment it intends to use to meet applicable pretreatment standards.
- d. The manager may require other industrial users, including waste haulers, to obtain wastewater discharge permits as necessary to carry out the purposes of this chapter.

2. Connections:

- a. Existing: Any significant industrial user which has a discharge into the POTW or collection system prior to the effective date hereof and which wishes to continue such discharges in the future, shall, within ninety (90) days after said date, apply to the manager for a discharge permit in accordance with subsections A2 and A3 of this section, and shall not cause or allow discharges to the POTW to continue after ninety (90) days of the effective date hereof, except in accordance with a local wastewater discharge permit issued by the manager.
- b. New: Any significant industrial user proposing to begin or recommence discharging into the POTW must obtain a local wastewater discharge permit prior to the beginning or recommencing of such discharge. An application for a wastewater discharge permit must be submitted to the manager at least ninety (90) days prior to the date upon which any discharge will begin or recommence. The manager has the right to place conditions on new or increased discharges from existing users.
- c. Extra Jurisdictional: All such pretreatment activities will be in accordance with the city approved wastewater/pretreatment ordinance and the St. George pretreatment operation plan, which is incorporated herein and made a part of this chapter. The

manager shall be responsible for implementing the pretreatment operation plan.

3. Contents: Local discharge permits shall include such conditions as are reasonably deemed necessary by the manager to prevent pass-through or interference, protect the quality of the water body receiving the treatment plant's effluent, protect worker health and safety, facilitate sludge management and disposal, protect ambient air quality, and protect against damage to the POTW. Local discharge permits shall contain conditions in accordance with the pretreatment program.
4. Modification:
 - a. The manager may modify the local discharge permit in accordance with the pretreatment program.
 - b. The filing of a request by the permittee for a local discharge permit modification does not stay any wastewater discharge permit condition.
5. Duration: Local discharge permits shall be issued for a specified time period in accordance with the pretreatment program.
6. Wastewater Discharge Permit Appeals: Any person, including the industrial user, may petition the city council to reconsider the terms of a local discharge permit within thirty (30) days of its issuance. Appeals shall be in accordance with the pretreatment program.
7. Revocation: Discharge permits may be revoked for the following reasons in accordance with the pretreatment program:
 - a. Failure to notify the manager of significant changes to the wastewater prior to the changed discharge.
 - b. Failure to provide prior notification to the manager of changed condition pursuant to subsection [7-5-12A5](#) of this chapter.
 - c. Misrepresentation or failure to fully disclose all relevant facts in the wastewater discharge permit application.
 - d. Falsifying self-monitoring reports.
 - e. Tampering with monitoring equipment.
 - f. Refusing to allow the manager, or his designee, timely access to the facility premises and/or records.
 - g. Failure to meet effluent limitations.
 - h. Failure to pay fines.
 - i. Failure to pay sewer charges.

- j. Failure to meet compliance schedules.
- k. Failure to complete a wastewater survey or the local discharge permit application.
- l. Failure to provide advance notice of the transfer of a permitted facility.
- m. Violation of any pretreatment standard or requirement, or any terms of the local discharge permit or this chapter.

Discharge permits shall be voidable upon nonoperation of permitted facility, cessation of operations or transfer of business ownership. (Ord. 99-2, 1-27-1999)

7-5-11: FEES:

- A. User Fees: User fees should be assessed whenever there is a need to recover the cost of impacts on the POTW. These fee calculations are found in [article A of this chapter](#) and in the pretreatment program.
- B. Pretreatment Fees: The city may adopt reasonable charges and fees for reimbursement to the POTW for costs of setting up and operating the pretreatment program. (Ord. 99-2, 1-27-1999)

7-5-12: REPORTING REQUIREMENTS:

All industrial users of the POTW shall be subject to the reporting requirements of the pretreatment program. All reports must be signed and certified in accordance with subsection [7-5-10A3](#) of this chapter.

- A. Reports: These reports, described in the pretreatment program, include, but are not limited to:
 - 1. Baseline monitoring reports.
 - 2. Compliance schedule progress reports.
 - 3. Categorical pretreatment standard compliance reports.
 - 4. Periodic compliance reports.
 - 5. Changed condition reports.

6. Slug and/or spill discharge reports.
 7. Nonpermitted industrial user reports.
 8. Repeat sampling reports.
 9. Hazardous waste discharge notifications.
- B. Timing: Written reports will be deemed to have been submitted on the date postmarked. For reports which are not mailed, postage prepaid, into a mail facility serviced by the U.S. postal service, the date of receipt of the report shall govern.
- C. Record Keeping: Industrial users shall retain, and make available for inspection and copying, all records and information required to be retained under this chapter. These records shall remain available for a period of at least three (3) years. This period shall be automatically extended for the duration of any enforcement action concerning compliance with this chapter, or where the industrial user has been specifically notified of a longer retention time by the manager. (Ord. 99-2, 1-27-1999)

7-5-13: COMPLIANCE MONITORING:

A. Inspection; Right To Enter:

1. The manager, or his designee, shall have the right to enter the facilities of any industrial user at reasonable times to ascertain whether the purpose of this chapter, and any permit or order issued hereunder, is being met and whether the industrial user is complying with all requirements thereof. Industrial users shall allow the manager or his designee ready access to all parts of the premises for the purposes of inspection, sampling, records examination and copying, and the performance of any additional duties.
2. Where an industrial user has security measures in force which require proper identification and clearance before entry into its premises, the industrial user shall make necessary arrangements with its security guards so that, upon presentation of suitable identification, personnel from the city, the manager or designated representative, POTW, state or EPA will be permitted to enter without delay, for the purposes of performing their specific responsibilities.

B. Monitoring:

1. Industrial users shall collect samples and have the samples analyzed and perform other monitoring on wastewater discharges as required in the users' permits and the pretreatment program. All such sampling, analyzing and monitoring will be at the

expense of the industrial user.

2. The city, the manager or designated representative, POTW, state and EPA shall have the right to set up on the industrial user's property, or require installation of, such devices as are necessary to conduct sampling and/or metering of the user's operations.
3. All analyses of samples taken for compliance with this chapter must be analyzed by methods specified in 40 CFR 136.

C. Obstructions And Delays:

1. Any temporary or permanent obstruction to safe and easy access to the industrial facility to be inspected and/or sampled shall be promptly removed by the industrial user at the written or verbal request of the manager and shall not be replaced. The costs of clearing such access shall be borne by the industrial user.
2. Delays in allowing the city, the manager or designated representative, or POTW personnel access to the industrial user's premises shall be a violation of this chapter. (Ord. 99-2, 1-27-1999)

7-5-14: CONFIDENTIAL INFORMATION:

Information and data on an industrial user obtained from reports, surveys, wastewater discharge permit applications, wastewater discharge permits and monitoring programs, and from the POTW inspection and sampling activities, shall be available to the public without restriction unless the industrial user specifically requests, and is able to demonstrate to the satisfaction of the manager, that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets under applicable state law. When requested and demonstrated by the industrial user furnishing a report that such information should be held confidential, the portions of a report which might disclose trade secrets or secret processes shall not be made available for inspection by the public, but shall immediately be made available, upon request, to governmental agencies for uses related to the UPDES program or pretreatment program, and in enforcement proceedings involving the person furnishing the report. Wastewater constituents and characteristics and other "effluent data" as defined by 40 CFR 2.302 will not be recognized as confidential information and will be available to the public without restriction. The POTW will provide a secure facility to maintain documentation considered confidential. (Ord. 99-2, 1-27-1999)

7-5-15: ANNUAL PUBLICATION:

The manager will publish, in the largest local daily newspaper, the names of users found to be in significant noncompliance of the pretreatment program during the previous twelve (12) months, as required by the pretreatment program. (Ord. 99-2, 1-27-1999)

7-5-16: ADMINISTRATIVE ENFORCEMENT REMEDIES:

- A. Notification Of Violation: Whenever the manager finds that any user has violated or is violating this chapter, a wastewater discharge permit or order issued hereunder, or any other pretreatment requirement, the manager, or his agent, may serve upon said user a written notice of violation. Such written notice shall be served in person or by certified mail where a receipt is obtained. Within thirty (30) days of the receipt of this notice, an explanation of the violation and a plan for the satisfactory correction and prevention thereof, to include specific required actions, shall be submitted by the user to the manager. Submission of this plan in no way relieves the user of liability for any violations occurring before or after receipt of the notice of violation. Nothing in this section shall limit the authority of the city or its designated representative to take any action, including emergency actions or any other enforcement action, without first issuing a notice of violation.
- B. Consent Orders: The manager is hereby empowered to enter into consent orders, assurances of voluntary compliance or other similar documents establishing an agreement with any user responsible for noncompliance. Such orders will include specific action to be taken by the order. Consent orders shall have the same force and effect as administrative orders issued pursuant to subsections D and E of this section and shall be judicially enforceable.
- C. Show Cause Hearing: The manager may order any user which causes or contributes to violations of this chapter, wastewater discharge permits or orders issued hereunder, or any other pretreatment standard or requirement, to appear before the manager and show cause why a proposed enforcement action should not be taken. Notice shall be served on the user specifying the time and place for the meeting, the proposed enforcement action, the reasons for such action, and a request that the user show cause why this proposed enforcement action should not be taken. Such written notice shall be served in person or by certified mail where a receipt is obtained at least seven (7) days prior to the hearing. Such notice may be served on any authorized representative of the user. Whether or not the user appears as ordered, immediate enforcement action may be pursued following the hearing date. A show cause hearing shall not be a prerequisite for taking any other actions against the user.
- D. Compliance Orders: When the manager finds that a user has violated or continues to violate this chapter, wastewater discharge permits or orders issued hereunder, or any other pretreatment standard or requirement, he may issue an order to the user responsible for the discharge directing that the user come into compliance within thirty (30) days. If the user does not come into compliance within thirty (30) days, sewer, water or electrical power service may be discontinued. This may be accomplished by the city causing a physical break in the user's service connections, or in the case of the sewer, the city may permanently seal the user's drains by injecting concrete or similar material. Compliance orders may also contain other requirements to address the noncompliance, including additional self-monitoring, and management practices designed to minimize the amount of pollutants discharged to the sewer. A compliance order may not extend the deadline for compliance established for a federal pretreatment standard or requirement, nor does a

compliance order release the user of liability for any violation, including any continuing violation. Issuance of a compliance order shall not be a prerequisite to taking any other action against the user.

E. Cease And Desist Orders:

1. If the manager finds that a user is violating this chapter, the user's wastewater discharge permit, any order issued hereunder, or any other pretreatment standard or requirement, or that the user's past violations are likely to recur, the manager may issue an order to the user directing it to cease and desist all such violations and directing the user to:
 - a. Immediately comply with all requirements.
 - b. Take such appropriate remedial or preventive action as may be needed to properly address a continuing or threatened violation, including halting operations and/or terminating the discharge.
2. Issuance of a cease and desist order shall not be a prerequisite to taking any other action against the user.

F. Administrative Fines:

1. Notwithstanding any other section of this chapter, any user found to have violated any provision of this chapter, its wastewater discharge permit and orders issued hereunder, or any other pretreatment standard or requirement, may be fined one thousand dollars (\$1,000.00) per day per violation. Such fines shall be assessed on a per violation, per day basis. In the case of monthly or other long term average discharge limits, fines shall be assessed for each day during the period of violation. The manager may add the costs of preparing administrative enforcement actions such as notices and orders to the fine.
2. Assessments may be added to the user's next scheduled sewer service charge and the manager shall have such other collection remedies as may be available for water service charges and fees.
3. Unpaid charges, fines and penalties shall, after sixty (60) calendar days, be assessed an additional penalty of ten percent (10%) of the unpaid balance, and interest shall accrue thereafter at a rate of one and one-half percent (1.5%) per month, compounded monthly. A lien may be filed against the individual user's property for unpaid charges, fines and penalties.
4. Users desiring to dispute such fines must file a written request with the manager to reconsider the fine along with full payment of the fine amount within thirty (30) days of being notified of the fine. Where a request has merit, the manager shall convene a hearing on the matter within fourteen (14) days of receiving the request from the industrial user. In the event the user's appeal results in a full or partial refund, the refund, together with any interest accruing thereto, shall be returned to the industrial user.
5. Issuance of an administrative fine shall not be a prerequisite for taking any other action

against the user.

G. Emergency Suspensions:

1. The manager may immediately suspend a user's discharge permit (after informal notice to the user) whenever such suspension is necessary in order to stop an actual or threatened discharge which reasonably appears to present or cause an imminent or substantial endangerment to the health or welfare of any person. The manager may also suspend a user's discharge permit (after notice and opportunity to respond) that threatens to interfere with the operation of the POTW, or which presents or may present an endangerment to the environment.
2. Any user notified of a suspension of its discharge permit shall immediately stop or eliminate its contribution. In the event of a user's failure to immediately comply voluntarily with the suspension order, the manager shall take such steps as deemed necessary, including immediate severance of the sewer connection, to prevent or minimize damage to the POTW, its receiving stream, contamination of sludge, or endangerment to any individuals. The manager shall allow the user to recommence its discharge when the user has demonstrated to the satisfaction of the manager that the period of endangerment has passed, unless the termination proceedings set forth in subsection H of this section are initiated against the user.
3. A user that is responsible, in whole or in part, for any discharge presenting imminent endangerment shall submit a detailed written statement describing the causes of the harmful contribution and the measures taken to prevent any future occurrence to the manager, prior to the date of any show cause or termination of discharge hearing under subsections C and H of this section.
4. Nothing in this section shall be interpreted as requiring a hearing prior to any emergency suspension under this section.

H. Termination Of Discharge:

1. In concert with the wastewater discharge permit revocation provisions in subsection [7-5-10B7](#) of this chapter, any user that violates any of the following conditions of this chapter, wastewater discharge permits or orders issued hereunder, is subject to discharge termination.
 - a. Violation of wastewater discharge permit conditions.
 - b. Failure to accurately report the wastewater constituents and characteristics of its discharge.
 - c. Failure to report significant changes in operations or wastewater volume, constituents and characteristics prior to discharge.
 - d. Refusal of reasonable access to the user's premises for the purpose of inspection, monitoring or sampling.

- e. Violation of the standards in section [7-5-8](#) of this chapter.
2. The industrial user will be notified of the proposed termination of its discharge and be offered an opportunity to show cause under subsection C of this section why the proposed action should not be taken. (Ord. 99-2, 1-27-1999)

7-5-17: JUDICIAL ENFORCEMENT REMEDIES:

- A. Injunctive Relief: Whenever a user has violated a pretreatment standard or requirement or continues to violate the provisions of this chapter, wastewater discharge permits or orders issued hereunder, or any other pretreatment requirement, the manager may petition the Washington County fifth district court for the issuance of a temporary or permanent injunction, as appropriate, which restrains or compels the specific performance requirements of the wastewater discharge permit, order or other requirement imposed by this chapter on activities of the industrial user. In addition, the city or its authorized representative may recover reasonable attorney fees, court costs and other expenses of litigation by appropriate legal action against the user found to have violated any provision herein, or any other rules, regulations, permits or agreements issued herein. Such other action as appropriate for legal and/or equitable relief may also be sought by the city or its authorized representative. A petition for injunctive relief need not be filed as a prerequisite to taking any other action against a user.
- B. Civil Fine Pass-Through Recovery: In the event that an industrial user discharges such pollutants which cause the city of St. George to violate any conditions of its UPDES permit and Washington City and/or the city of St. George is fined by the EPA or the state for such violations, then such industrial users shall be fully liable for the total amount of the fines and civil penalties assessed against Washington City and/or the city of St. George by the EPA or the state and administrative costs incurred.
- C. Referral To State For Action: The city may refer to the state criminal violations of any pretreatment standards or permit conditions. The state attorney general's office may offer the city wherein the violation occurred the option to prosecute the violator. Should the local entity decline, the state, at its discretion, may initiate appropriate criminal action. The city will assist the attorney general's office any way it can with appropriate support for the action taken.
- D. Nonexclusive Remedies: The provisions in this section and sections [7-5-16](#) and [7-5-18](#) of this chapter are not exclusive remedies. The city or its designated representative reserves the right to take any, all, or any combination of these actions against a noncompliant user. Enforcement of pretreatment violations will generally be in accordance with the enforcement response plan contained in the pretreatment program, however the city reserves the right to take other action against any user when the circumstances warrant. Further, the city is empowered to take more than one enforcement action against any

noncompliant user. These actions may be taken concurrently. (Ord. 99-2, 1-27-1999)

7-5-18: SUPPLEMENTAL ENFORCEMENT ACTION:

- A. **Performance Bonds:** The manager may decline to reissue a wastewater discharge permit to any user which has failed to comply with the provisions of this chapter, any orders, or a previous wastewater discharge permit issued hereunder, unless such user first files a satisfactory bond, payable to the POTW, in a sum not to exceed a value determined by the manager to be necessary to achieve consistent compliance.

- B. **Liability Insurance:** The manager may decline to reissue a wastewater discharge permit to any user which has failed to comply with the provisions of this chapter, any order or previous wastewater discharge permit issued hereunder, unless the user first submits proof that it has obtained financial assurances sufficient to restore or repair damage to the POTW caused by its discharge.

- C. **Water Supply Severance:** Whenever a user has violated or continues to violate the provisions of this chapter, orders or wastewater discharge permits issued hereunder, water service to the user may be severed. Service will only recommence, at the user's expense, after it has satisfactorily demonstrated its ability to comply.

- D. **Public Nuisances:** Any violation of this chapter, orders or wastewater discharge permits issued hereunder, is hereby declared a public nuisance and shall be corrected or abated as directed by the manager or his designee. Any person creating a public nuisance shall be subject to the provisions this code governing such nuisances, including reimbursing the city or its designated representative for any costs incurred in removing, abating or remedying said nuisance. (Ord. 99-2, 1-27-1999)

- E. **Criminal Violations:**
 - 1. Any person who knowingly or intentionally violates or allows or causes any violation of any of the provisions of this chapter, or the city pretreatment program referenced herein, is guilty of a class B misdemeanor, subject to penalty as provided in section [1-4-1](#) of this code.

 - 2. Any person who knowingly or intentionally introduces or allows or causes to be introduced into the POTW any pollutant or hazardous substance which causes or which such person knew or reasonably should have known could cause personal injury or property damage or, other than in compliance with all applicable federal, state or local requirements or permits, which causes the POTW to violate any effluent limitation or condition in a permit issued to the city or POTW, is guilty of a class B misdemeanor, subject to penalty as provided in section [1-4-1](#) of this code.

3. Any person who knowingly makes or causes another to make a false statement, representation or certification in any application, record, report, plan or other document filed or required to be maintained pursuant to this chapter, or who knowingly falsifies, tampers with or renders inaccurate any monitoring device or method required to be maintained under this chapter, is guilty of a class B misdemeanor, subject to penalty as provided in section [1-4-1](#) of this code. (Ord. 99-2, 1-27-1999; amd. 2007 Code)
4. Each day a violation continues under subsections E1 through E3 of this section, or of any other provisions of this chapter, shall constitute a new and separate offense and shall subject the person committing or allowing the offense to additional charges thereunder.
5. Any violation of subsections E1 through E3 of this section, or of any other provisions of this chapter may, in the discretion of the city attorney, be prosecuted as an infraction rather than a class B misdemeanor. (Ord. 99-2, 1-27-1999)

7-5-19: AFFIRMATIVE DEFENSES:

A. Upset:

1. For the purposes of this section, "upset" means an exceptional incident in which there is unintentional and temporary noncompliance by the industrial user with categorical pretreatment standards because of factors beyond the reasonable control of the industrial user. An "upset" does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance or careless or improper operation.
2. An upset shall constitute an affirmative defense to an action brought for noncompliance with categorical pretreatment standard requirements if the requirements of subsection A3 of this section are met.
3. Industrial user who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that:
 - a. An upset occurred and the industrial user can identify the cause of the upset;
 - b. The facility was at the time being operated in a prudent and workmanlike manner and in accordance with applicable operation and maintenance procedures;
 - c. The industrial user has submitted the following information to the POTW and treatment plant operator within twenty four (24) hours of becoming aware of the upset. If this information is provided verbally, a written submission must be provided within five (5) days of the upset:
 - (1) A description of the local discharge and cause of noncompliance.

(2) The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue.

(3) Steps being taken and/or planned to reduce, eliminate and prevent recurrence of the noncompliance.

4. In any enforcement proceeding, the industrial user seeking to establish the occurrence of an upset shall have the burden of proof.

5. Industrial users will have the opportunity for a judicial determination on any claim of upset in an enforcement action brought for noncompliance with categorical pretreatment standards.

6. The industrial user shall control production of all discharges to the extent necessary to maintain compliance with categorical pretreatment standards upon reduction, loss or failure of its treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost or has failed.

B. General/Specific Prohibitions: An industrial user shall have an affirmative defense to an enforcement action brought against it for noncompliance by the POTW with the general and specific prohibitions in subsection [7-5-8A](#) of this chapter if it can prove that it did not know or have reason to know that its discharge, alone or in conjunction with discharges from other sources, would cause pass-through or interference, and that either:

1. A local limit exists for each pollutant discharged and the industrial user was in compliance with each limit directly prior to, and during, the pass-through or interference; or

2. No local limit exists, but the POTW was regularly in compliance with its UPDES permit, and in the case of interference, was in compliance with applicable sludge use or disposal requirements, prior to the pass-through or interference.

C. Bypass:

1. Definitions:

BYPASS: The diversion of waste streams from any portion of an industrial user's treatment facility.

SEVERE PROPERTY DAMAGE: Substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

2. When Permitted: An industrial user may allow a bypass to occur which does not cause pretreatment standards or requirements to be violated, but only if it also is for essential

maintenance to assure efficient operation. These bypasses are not subject to the provision of subsections C3 and C4 of this section.

3. **Prior Notice:** If an industrial user knows in advance of the need for a bypass, it shall submit prior notice to the POTW, at least ten (10) days before the date of the bypass if possible.
4. **Unanticipated Bypass:** An industrial user shall submit verbal notice of an unanticipated bypass that exceeds applicable pretreatment standards to the POTW within twenty four (24) hours from the time it becomes aware of the bypass. A written submission shall also be provided within five (5) days of the time the industrial user becomes aware of the bypass. The written submission shall contain a description of the bypass and its cause; the duration of the bypass, including exact dates and times, and, if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate and prevent reoccurrence of the bypass. The POTW may waive the written report on a case by case basis if the oral report has been received within twenty four (24) hours.
5. **Exceptions:** Bypass is prohibited, and the POTW may take enforcement action against an industrial user for a bypass, unless:
 - a. The bypass was unavoidable to prevent loss of life, personal injury or severe property damage;
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - c. The industrial user submitted notices as required under subsection C3 of this section.
6. **Approval After Consideration:** The POTW may approve an anticipated bypass, after considering its adverse effects, if the POTW determines that it will meet the three (3) conditions listed in subsection C5 of this section. (Ord. 99-2, 1-27-1999)

ARTICLE A. USER FEES AND CHARGES

7-5A-1: NORMAL WASTEWATER STRENGTHS:

Normal wastewater strengths are established as follows:

	BOD (5 Day Biochemical Oxygen Demand) (mg/l)	TSS (Total Suspended Solids) (mg/l)
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General commercial	250	385
Food services	380	385

Charges for users with wastewater strengths in excess of normal shall be based upon the formula in section [7-5A-5](#) of this article. (Ord. 99-5, 3-10-1999)

7-5A-2: SCHEDULE OF SPECIAL CHARGES:

A. To provide for the recovery of the city's cost associated with the discharge of industrial wastewater to the wastewater system and for the enforcement of the provisions of this article, the city council shall establish a schedule of special charges. The schedule of special charges may set forth specific amounts for any fees, charges, liabilities or other cost recovery provisions recommended by the public works director and approved by the city council. Recovery of amounts based on actual costs or damages incurred by the city may include late charges or service charges. The assessment of these late charges and service charges may be waived at the sole discretion of the public works director. The city council may adopt or amend a schedule of special charges to include, but not be limited to:

1. Permit application fees;
2. Plan check fees;
3. Inspection fees;
4. Service contract charges;
5. Waste hauler fees;
6. Compliance monitoring fees;
7. Wastewater service charges;
8. Flow, conventional and nonconventional pollutant surcharges;
9. Administrative fees and penalties;
10. Reconsideration fees;
11. Disposal fees and special wastes;
12. Chemical analysis fees.

B. No statement in this article shall be construed as preventing the city from establishing any lawful fees and charges. (Ord. 99-5, 3-10-1999)

7-5A-3: UNUSUAL CIRCUMSTANCES:

Special rates and conditions for users of the wastewater service who discharge wastes of unusual character or who make use of the wastewater system under exceptional circumstances may be set from time to time upon such terms and conditions as are deemed proper by the public works director, as provided in section [7-5A-5](#) of this article. (Ord. 99-5, 3-10-1999)

7-5A-4: PERMIT FEES AND SPECIAL CHARGES:

In accordance with resolution 98-2, ordinance 99-2 and in compliance with the federal water pollution act of 1972, all costs of industrial waste control are mandated to be charged to the contributing industrial dischargers. Thus, the fees are as follows:

SCHEDULE OF SPECIAL CHARGES

Fee	Class I	Class II	Waste Hauler And Class III
Permit	\$ 100.00	\$ 50.00	\$25.00
Plan check (if needed)	100.00	75.00	50.00
Annual compliance monitoring (if needed)	1,000.00	250.00	50.00
Request formal consideration	100.00	75.00	50.00
Administrative penalties:		All Classes	
Late reports		\$ 10.00/day	
Unsigned report		5.00/day	
Failure to attend compliance meeting		50.00/day	
Failure to post notices to employees		10.00/day	
Failure to prenotify before monitoring		100.00	
Failure to allow immediate inspection entry		300.00	
BOD ₅ or SS extra strength discharge	See formula in section 7-5A-5 of this article		

The penalty fee for improperly maintain-ed grease and sand traps, which will be levied against the owner of the property		\$ 50.00	
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In addition to analysis and labor fees, along with civil and criminal charges, the following administrative fees for noncompliance may be charged:

Parameter	Dollars Per Pound Unless Otherwise Specified Or Fraction Thereof Per Day In Excess Of Permit Limit
Ammonia (as N)	\$ 0.40
Arsenic	300.00
Barium	50.00
Beryllium	100.00
Biochemical oxygen demand	See section 7-5A-5 of this article
Cadmium	300.00
Chemical oxygen demand	0.40
Chloride	0.40
Chlorine residual	100.00
Chromium (total)	300.00
Copper	300.00
Cyanide (total)	300.00
Endrin	300.00
Fluoride	100.00
Iron	300.00
Lead	300.00
Lindane	300.00
Mercury	300.00
Methoxychlor	300.00
Nickel	300.00
Nitrogen (nitrate and nitrate as N)	0.40
Oil and grease	See section 7-5A-5 of this article
Organophosphorus or carbamate compounds	300.00
Phenolic compounds	150.00
Selenium	100.00
Silver	300.00
Sulfate	0.40
Sulfide	150.00

Suspended solids	See section 7-5A-5 of this article
Total dissolved solids	0.40
Total identifiable chlorinated hydrocarbons	300.00
Total toxic organics	300.00
Toxaphene	300.00
Zinc	300.00
Other pesticides and herbicides	300.00

pH Range	Flat Fee Per Day Per Specified Quantity Or Fraction Thereof
Below 2.0 and above 13.0 (per 1 gallon)	\$125.00
2.0_3.0 and 12.0_13.0 (per 2 gallons)	100.00
3.1_4.0 and 11.0_11.9 (per 5 gallons)	75.00
4.1_5.0 and 10.0_10.9 (per 10 gallons)	50.00
5.1_5.9 and 9.1_9.9 (per 25 gallons)	25.00

Color (ADMI Units)	Flat Fee Per Day Per 50 Gallons Or Fraction Thereof
190 _ 500	\$100.00
500 _ 1,000	200.00
Above 1,000	300.00

In accordance with this article, the administrative cost of a sampling and evaluation program, including the costs for required laboratory analysis performed by city personnel, the city authorized representative, or a contracted laboratory, and costs incurred by city or its authorized representative, to establish user's compliance with its discharge limits, shall be billed to the discharge. The administrative costs shall include, but not be limited to: a) a prorated portion of the salaries and overhead of all the city employees who participated in the investigation, coordination, repair, cleanup, and for any other activities related to enforcement of and compliance with any sections of this article; b) the actual costs of materials, equipment and services used, including laboratory costs; c) city vehicle expenses used to transport such personnel and equipment; and d) costs for city legal counsel. (Ord. 99-5, 3-10-1999)

7-5A-5: RESIDENTIAL EQUIVALENT FORMULAS:

For purposes of this article, the discharge characteristics of an equivalent dwelling unit shall be

composed of conventional strength wastewater flow of six thousand (6,000) gallons per month and constituent levels of three hundred eighty five (385) parts per million suspended solids and two hundred fifty (250) parts per million biochemical oxygen demand. The number of residential equivalent units shall be determined for flow, total suspended solids and biochemical oxygen demand in establishing monthly user charges for industrial, commercial and institutional users having constituent levels greater than those specified for standard user classes established by the city council, such rates shall be set under the following formula:

$$C=S+(R_Q)(Q)+[R_B(B-250)+R_T(T-385)].00834Q$$

Where:

C = Monthly charge for sewer service.

S = Monthly service charge, currently \$0.50.

R_Q = Flow rate, currently \$1.57 per thousand gallons.

Q = Average monthly sewer flow in thousand gallons, measured by average culinary water meter reading during the winter quarter.

R_B = BOD surcharge, currently \$0.225 per pound of BOD.

B = Estimated or measured BOD concentration expressed in milligrams per liter.

R_T = TSS surcharge, currently \$0.122 per pound of total suspended solids.

T = Estimated or measured TSS concentration expressed in milligrams per liter.

(Ord. 99-5, 3-10-1999)

7-5A-6: OIL AND GREASE STANDARD:

In addition to other standards, an oil and grease standard shall be in effect for users. It is as follows:

- A. No person shall discharge wastewater containing more than fifty milligrams per liter (50 mg/l) of total oil and grease, unless a conditional approval has been specified in the user's discharge permit issued by the regional wastewater manager. Such conditional approval can only be authorized if the regional wastewater manager determines that the user is not required to comply with the federal categorical standard for oil and grease, or the user's discharge does not injure or interfere with any wastewater collection/treatment process, constitute a public hazard or nuisance, or cause the city to violate its UPDES

permit.

B. If conditional approval to exceed the fifty milligrams per liter (50 mg/l) oil and grease standard is authorized, the procedure and conditions shall be as follows:

1. The wastewater shall be analyzed by the city to determine BOD₅ and the composition of polar and nonpolar oil and grease. The cost of the sampling and analysis shall be paid for by the discharger.
2. The polar portion of the oil and grease concentration is assumed to be biodegradable and, therefore, is included in the BOD₅ measurement. And BOD₅ in excess of two hundred fifty milligrams per liter (250 mg/l) shall be surcharged at the rate set forth in the surcharge formula (nomenclature as set forth above):

$$C=R_b(B-250)0.00834Q$$

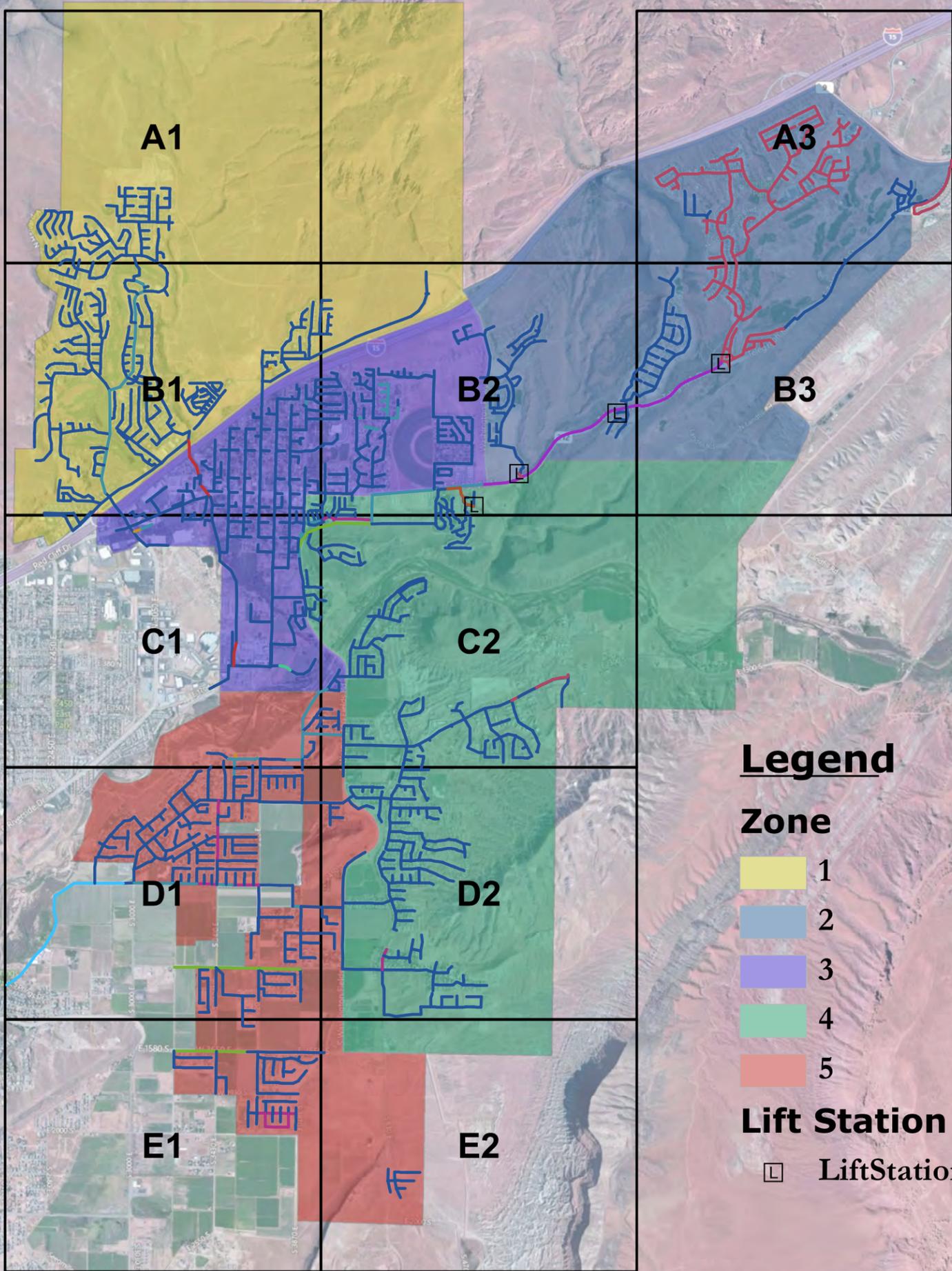
3. The nonpolar (mineral or petroleum origin) portion of the oil and grease concentration is assumed to be nonbiodegradable. When gasoline, machine oil and diesel fuel are the primary wastes of concern, the established limit of one part per million of BTEX¹ or naphthalene shall be enforced.
4. The total toxic organic limit, which is derived from the categorical standard for the metal finishing industry, shall be two (2) parts per million. (Ord. 99-5, 3-10-1999)

[Footnote 1](#): BTEX = benzene, toluene, ethyl benzene, zylenes

APPENDIX B

MAP OF COLLECTION SYSTEM

WASHINGTON CITY WASTEWATER COLLECTION SYSTEM Overall Map



Legend

Zone

- 1
- 2
- 3
- 4
- 5

Lift Station

- LiftStation





MAP LEGEND



1 in = 1,000 feet

Legend

Lift Station

 Lift Station

Manhole Size

 48

 60

 72

Main Line Type, Diameter

 Gravity, 18 inch

 Gravity, 15 inch

 Gravity, 14 inch

 Gravity, 12 inch

 Gravity, 10 inch

 Gravity, 8 inch

 Gravity, 6 inch

 Gravity, 4 inch

 Pressure, 12 inch

 Pressure, 8 inch

 Pressure, 4 inch

Page: A1 (1 of 11)

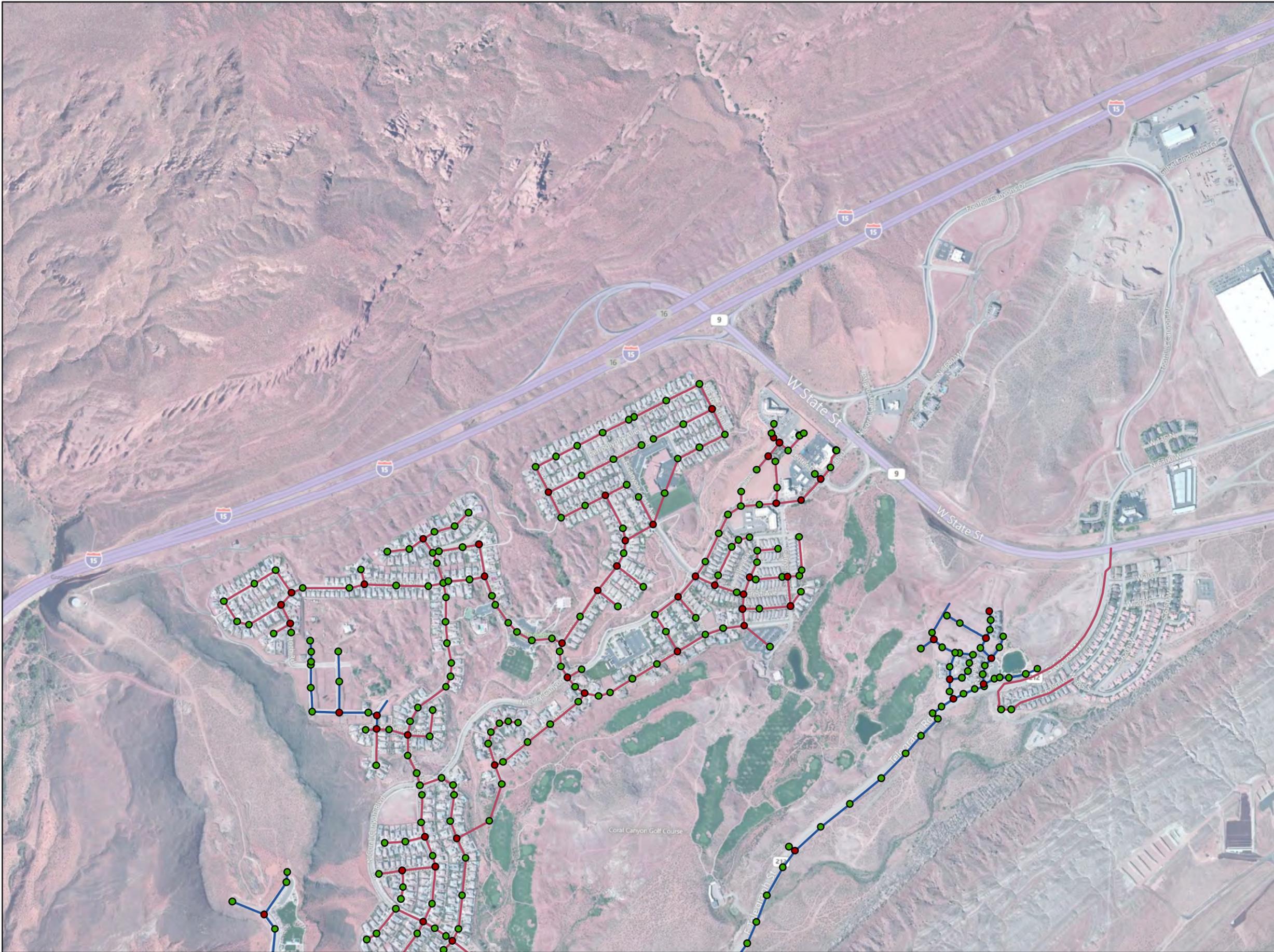


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WASHINGTON CITY

**WASTEWATER COLLECTION
 SYSTEM MAP**

SEI NO. S04005	DESIGNED SBH	DRAWN SBH	CHECKED DWS	SHEET NO. 1 of 1	A1
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MAP LEGEND



1 in = 1,000 feet

Legend

Lift Station

 Lift Station

Manhole Size

-  48
-  60
-  72

Main Line Type, Diameter

-  Gravity, 18 inch
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-  Gravity, 6 inch
-  Gravity, 4 inch
-  Pressure, 12 inch
-  Pressure, 8 inch
-  Pressure, 4 inch

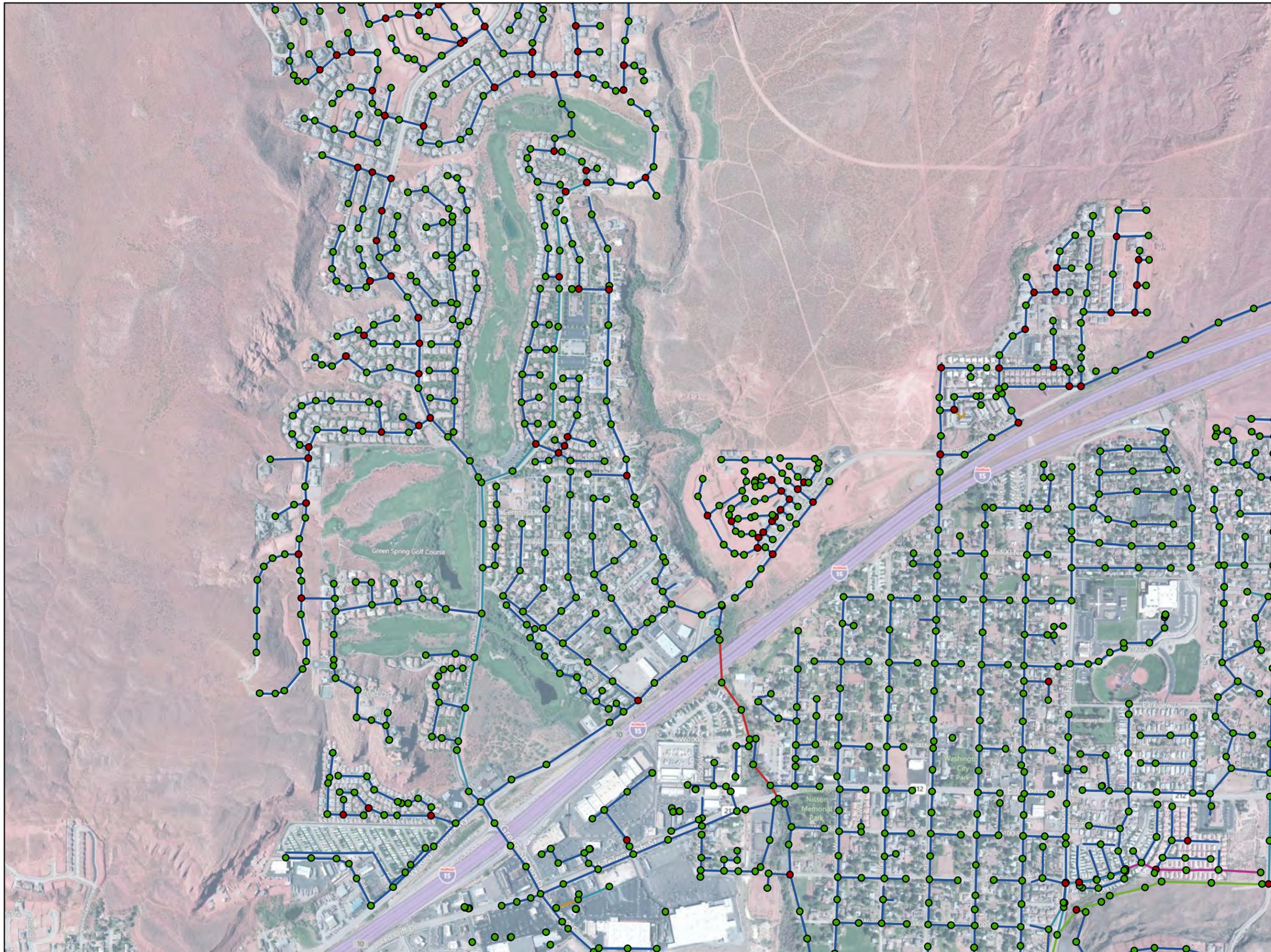
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**WASHINGTON CITY
 WASTEWATER COLLECTION
 SYSTEM MAP**

SEI NO. S04005	DESIGNED SBH	DRAWN SBH	CHECKED DWS	SHEET NO. 1 of 1	A3
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MAP LEGEND



1 in = 1,000 feet

Legend

Lift Station

 Lift Station

Manhole Size

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-  72

Main Line Type, Diameter

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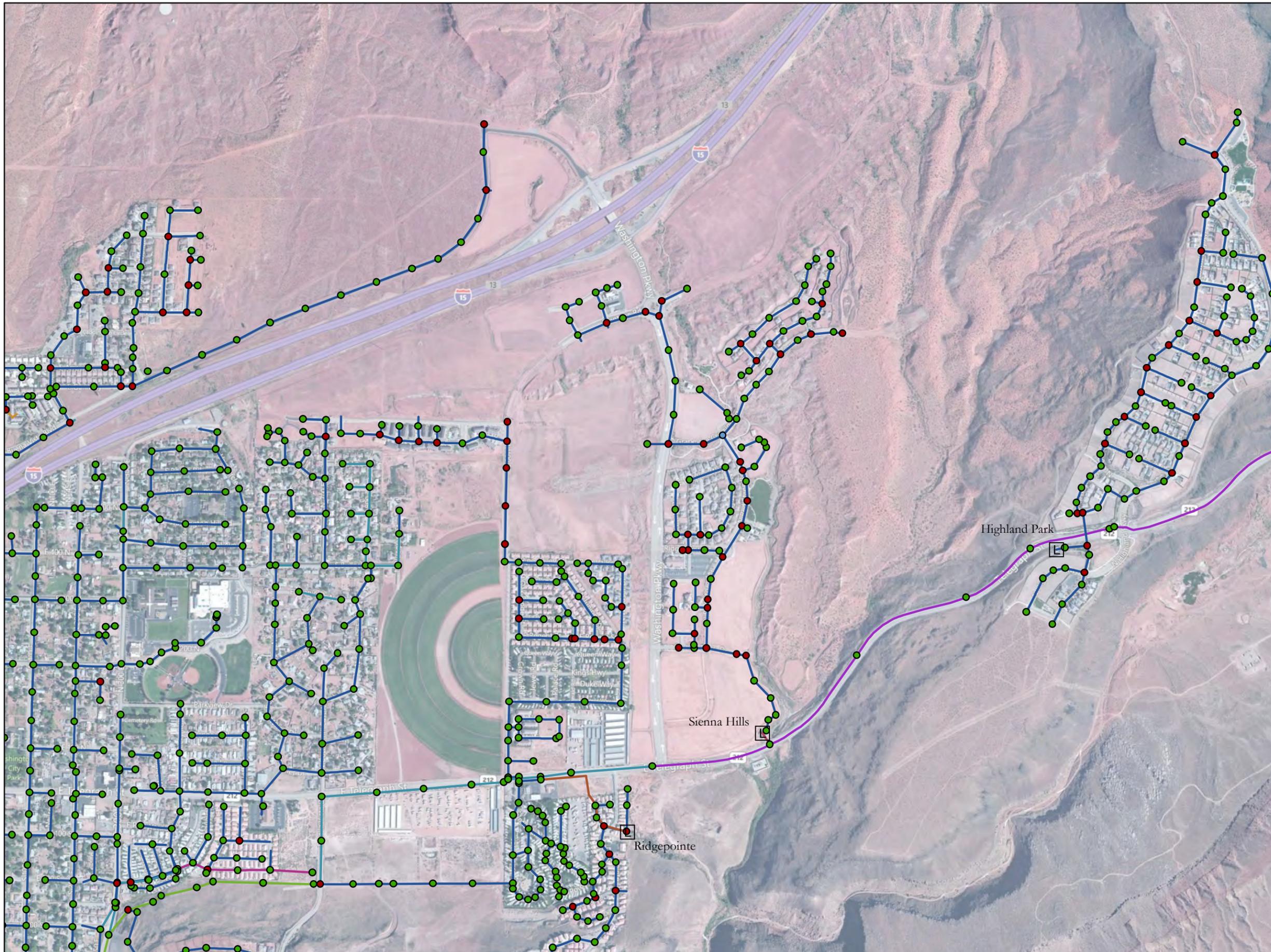
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**WASHINGTON CITY
 WASTEWATER COLLECTION
 SYSTEM MAP**

SEI NO. S04005	DESIGNED SBH	DRAWN SBH	CHECKED DWS	SHEET NO. 1 of 1	B1
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MAP LEGEND



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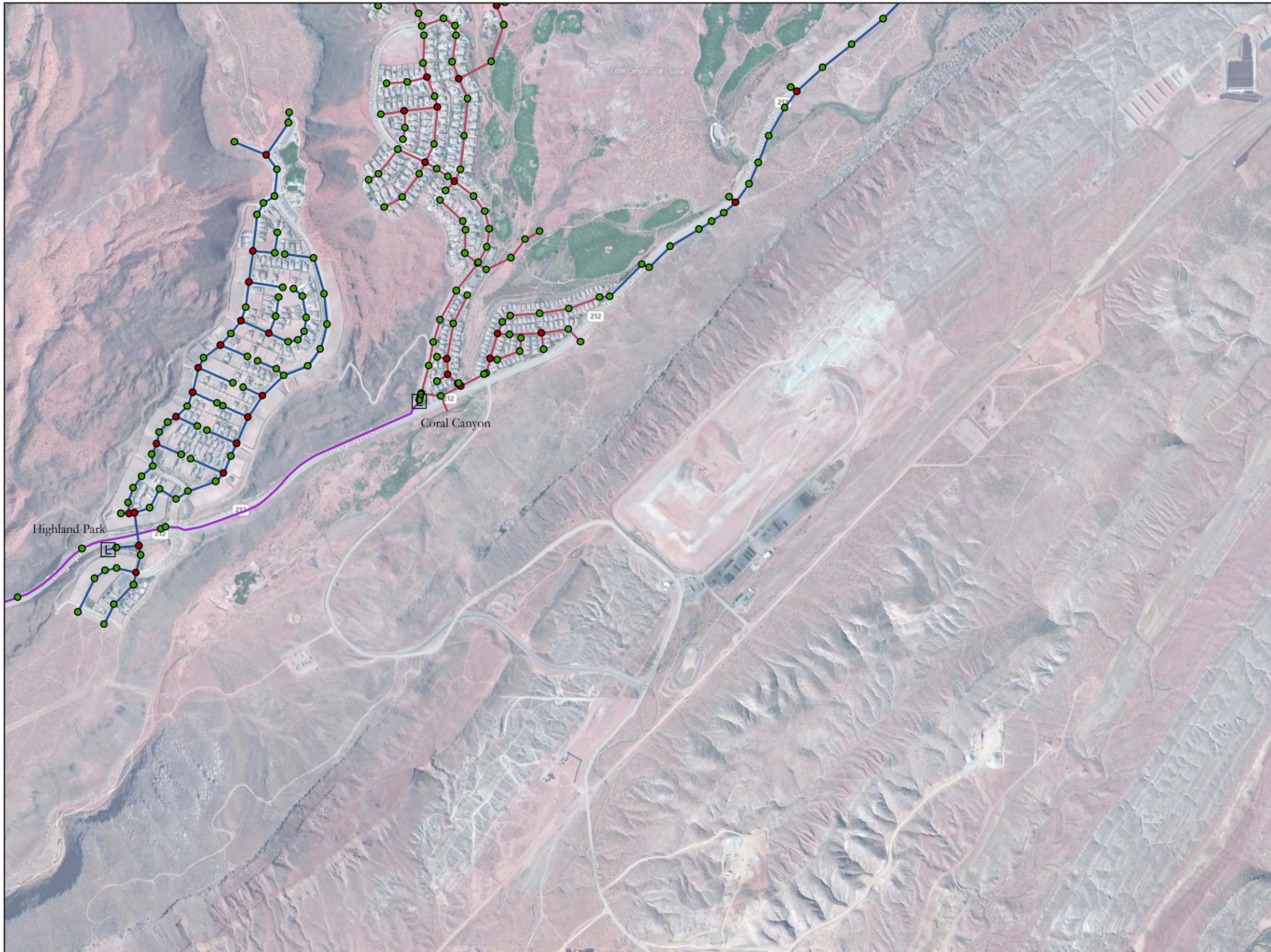
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**WASHINGTON CITY
 WASTEWATER COLLECTION
 SYSTEM MAP**

SEI NO. S04005	DESIGNED SBH	DRAWN SBH	CHECKED DWS	SHEET NO. 1 of 1	B2
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MAP LEGEND



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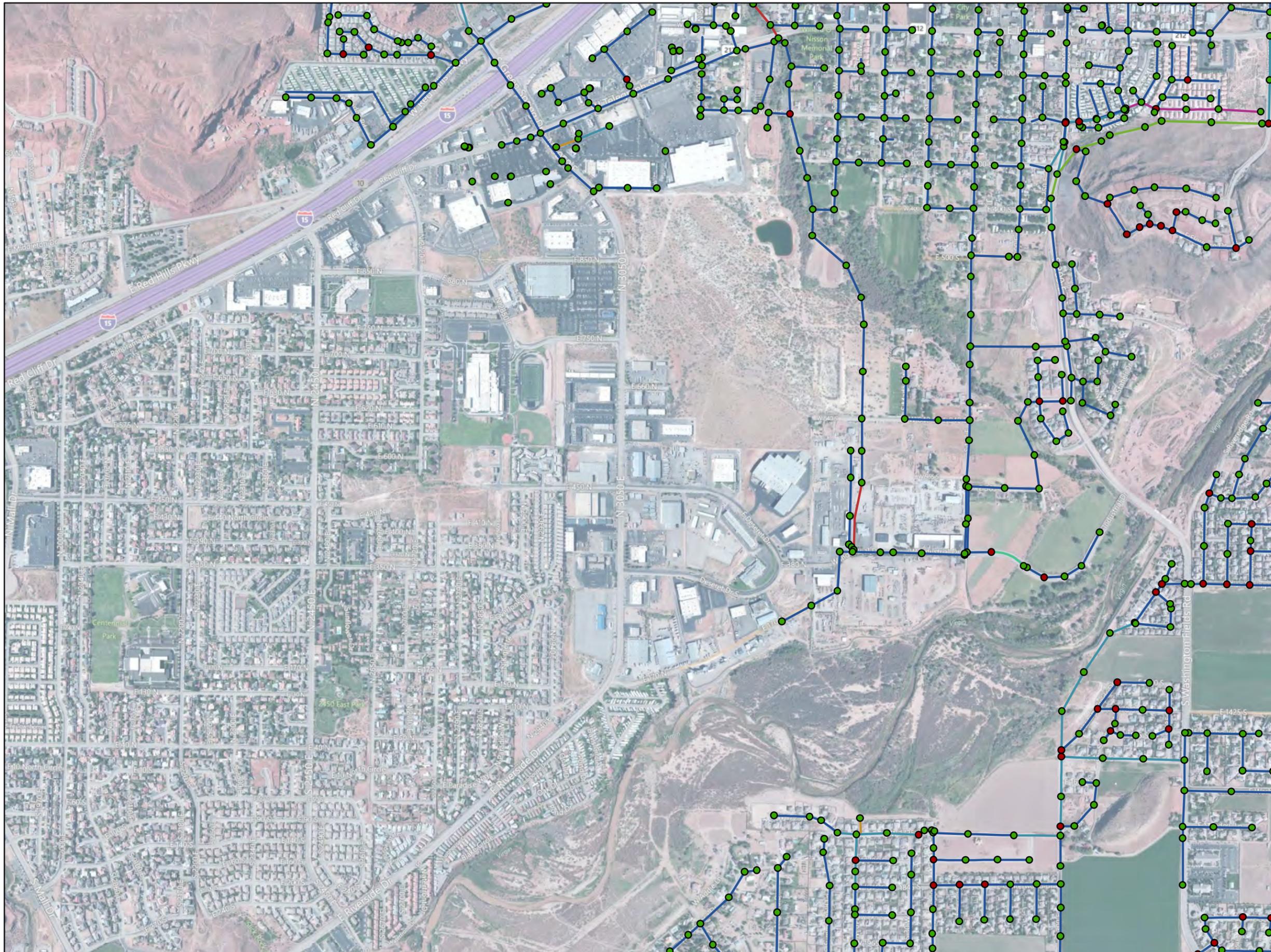
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**WASHINGTON CITY
 WASTEWATER COLLECTION
 SYSTEM MAP**

SEI NO. S04005	DESIGNED	DRAWN SBH	CHECKED DWS	SHEET NO. 1 of 1	B3
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MAP LEGEND



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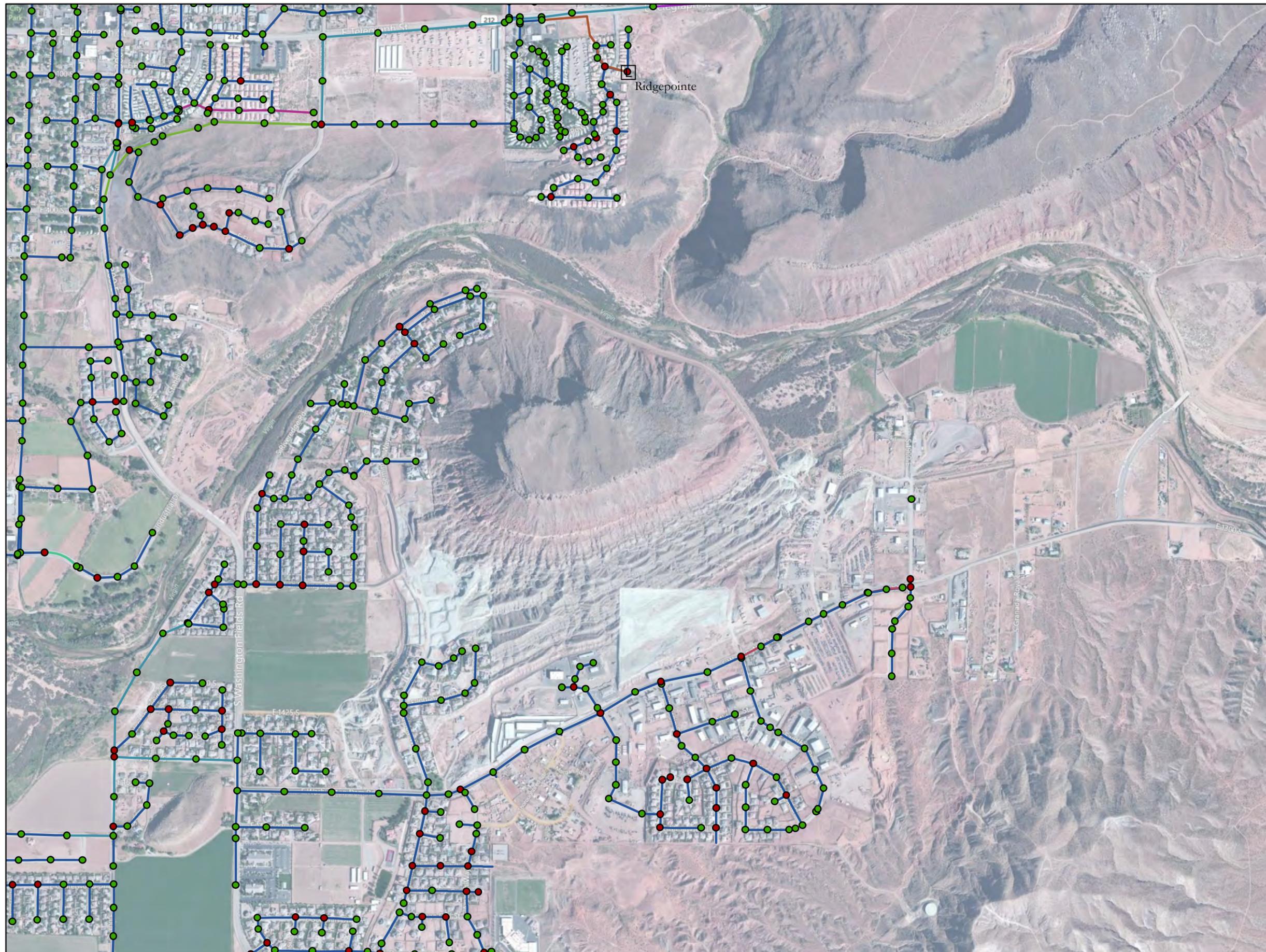
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**WASHINGTON CITY
 WASTEWATER COLLECTION
 SYSTEM MAP**

SEI NO. S04005	DESIGNED SBH	DRAWN SBH	CHECKED DWS	SHEET NO. 1 of 1	C1
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MAP LEGEND



1 in = 1,000 feet

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 Lift Station

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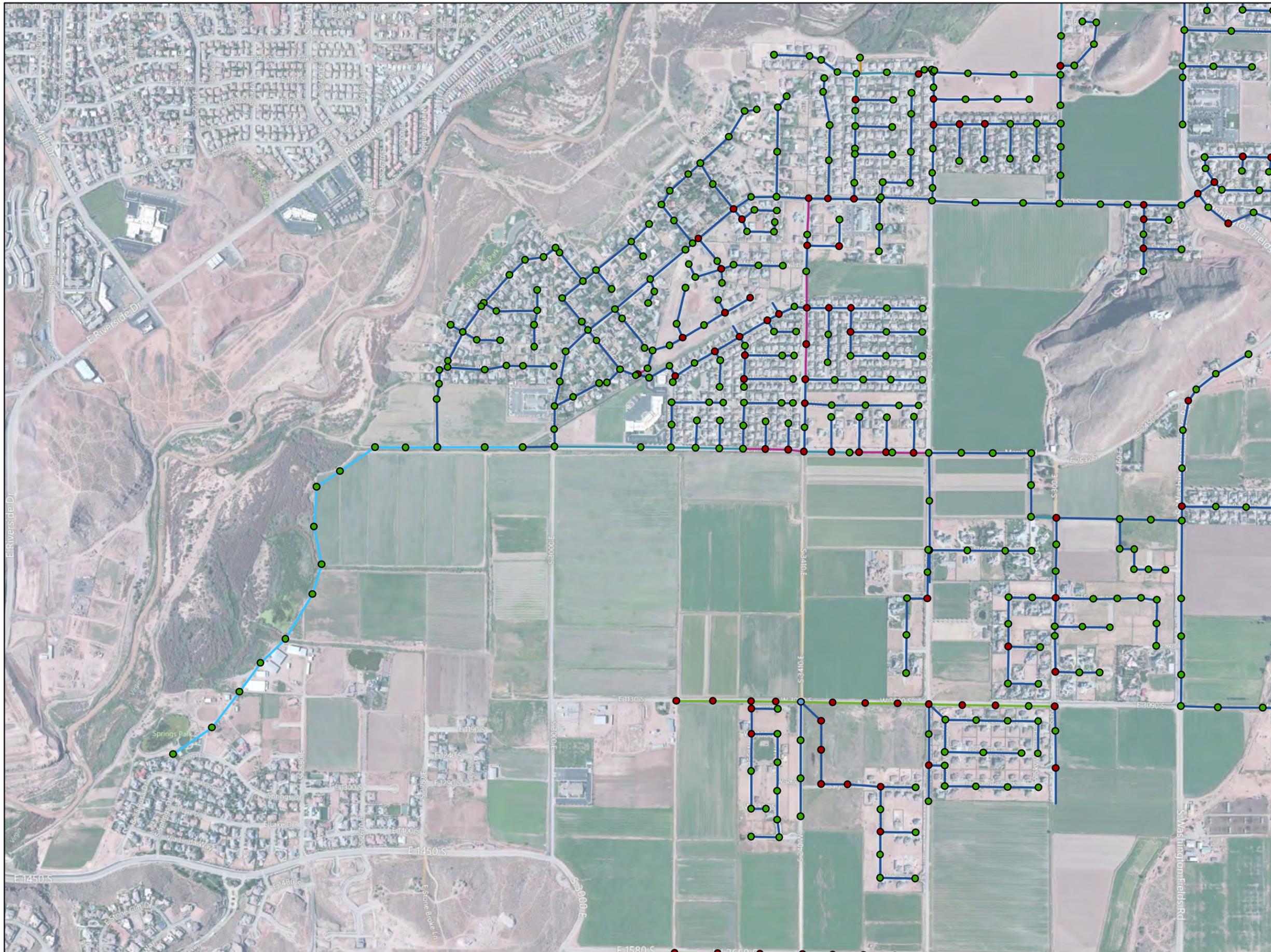
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**WASHINGTON CITY
 WASTEWATER COLLECTION
 SYSTEM MAP**

SEI NO. S04005	DESIGNED SBH	DRAWN SBH	CHECKED DWS	SHEET NO. 1 of 1	C2
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MAP LEGEND



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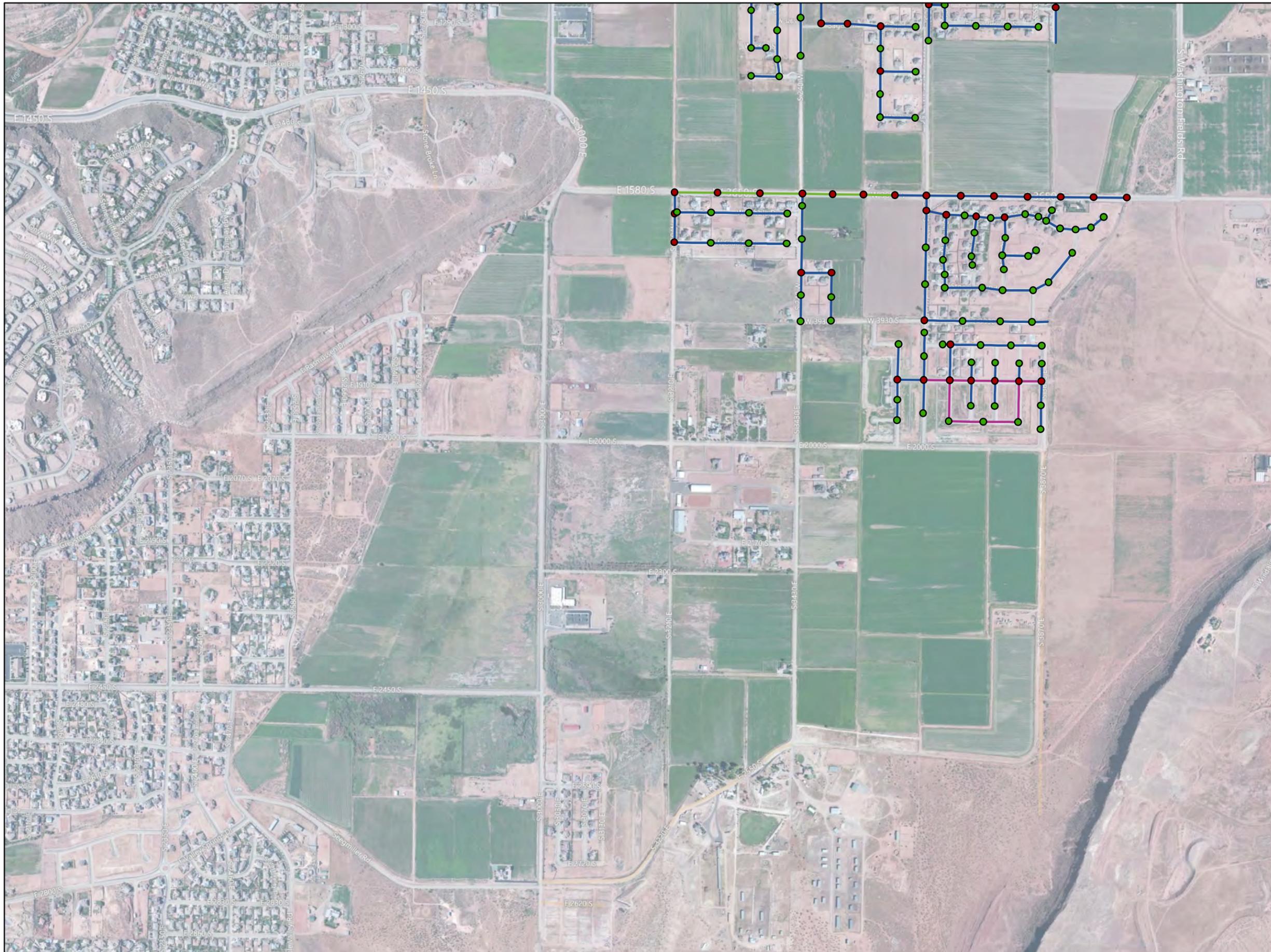
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**WASHINGTON CITY
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 SYSTEM MAP**

SEI NO. S04005	DESIGNED SBH	DRAWN DWS	CHECKED DWS	SHEET NO. 1 of 1	D1
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MAP LEGEND



1 in = 1,000 feet

Legend

Lift Station

☐ Lift Station

Manhole Size

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Main Line Type, Diameter

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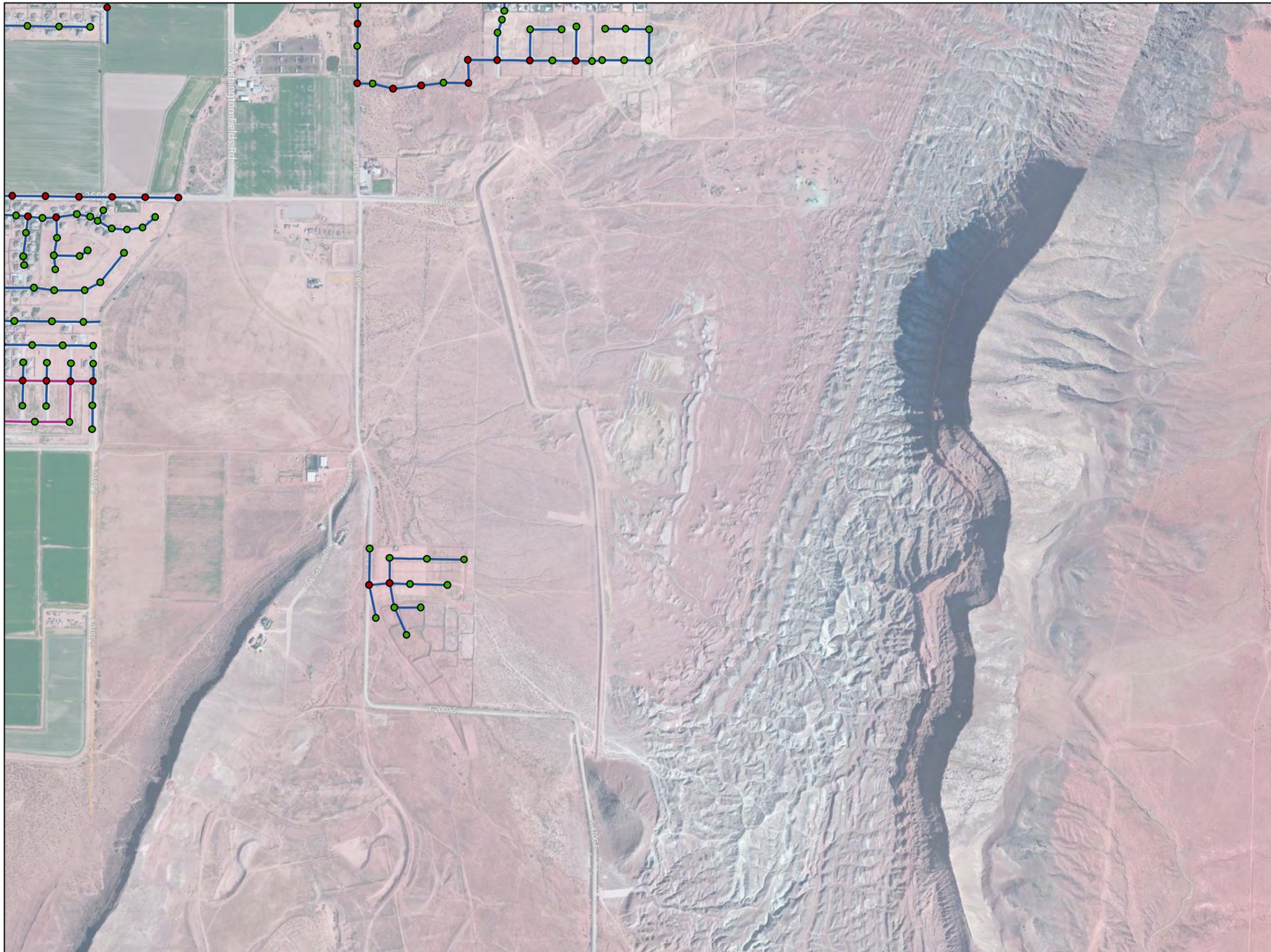
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**WASHINGTON CITY
 WASTEWATER COLLECTION
 SYSTEM MAP**

SEI NO. S04005	DESIGNED SBH	DRAWN SBH	CHECKED DWS	SHEET NO. 1 of 1	E1
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WASHINGTON CITY

**WASTEWATER COLLECTION
 SYSTEM MAP**

SEI NO. S04005	DESIGNED SBH	DRAWN SBH	CHECKED DWS	SHEET NO. 1 of 1	E2
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APPENDIX C

COLLECTION SYSTEM INSPECTION FORMS



LIFT STATION PREVENTIVE MAINTENANCE CHECK LIST

STATION: _____

Pump No. 1 S/N: _____ Pump No. 2 S/N: _____

G.P.M.: _____ T.D.H.: _____

	MON	TUE	WED	THU	FRI	SAT	SUN	COMMENTS
CHECKED BY:								
DATE:								
TIME:								
PUMP #								
Hours								
Suction Gauge								
R.P.M.								
Seal Oil								
Bearing Oil								
Belts								
PUMP #								
Hours								
Suction Gauge								
R.P.M.								
Seal Oil								
Bearing Oil								
Belts								
Air Flow Indicator								
Monitor 1 Pump Cycle								
Sump Pump								
Blower								
Dehumidifier								
Air Pump								
Air Release Valve								
Exercise Plug Valves								
Check Valve								
Lubricate A.R.V.								
Re-tension V-Drive								
Adjust Imp./Wear plate								
Clean Air Pump filter								
Recalibrate Transducer								
Grease Motor Bearings								
Locks								
Lights								
Heater								

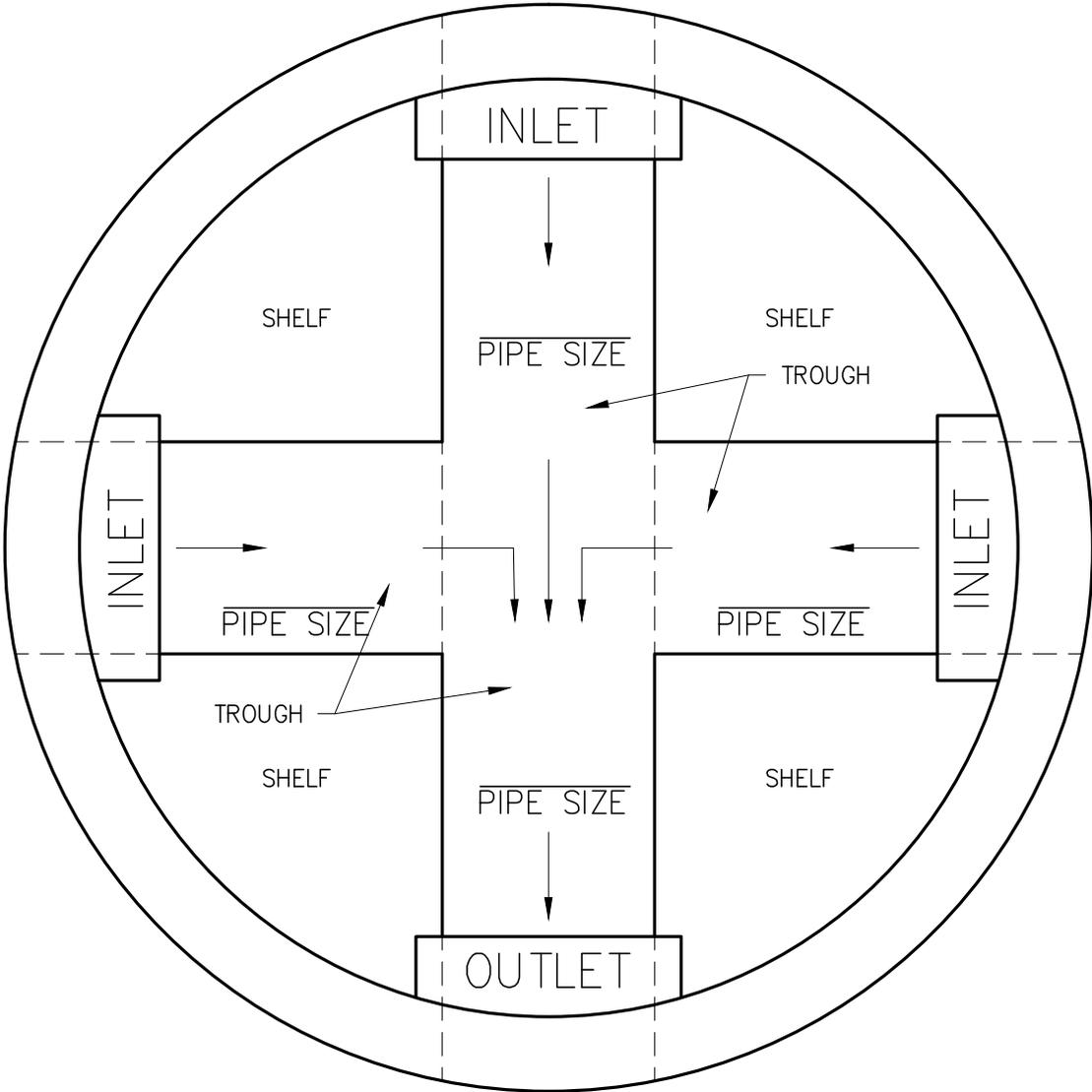
Take Gauge Reading While Pumps are Running and at the "OFF" Level



SANITARY SEWER MANHOLE INSPECTION FORM

¼ SEC. #:	M.H. DEPTH:	FORM:	M.H. #:	DATE:	
APPROX. ADDRESS:					
I. INITIAL INSPECTION		II. STRUCTURAL INSPECTION		III. HYDRAULIC INSPECTION	
<u>A. LOCATION:</u>		<u>A. STEPS:</u>		<u>A. INFLOW INDICATIONS:</u>	
1. Roadway <input type="checkbox"/>		1. Serviceable <input type="checkbox"/>		1. Debris on Sides/Shelf	
2. Gutter <input type="checkbox"/>		2. Unsafe <input type="checkbox"/>		<u>B. SURCHARGE INDICATOR:</u>	
3. Paved Alley <input type="checkbox"/>		3. Missing (no.) <input type="checkbox"/>			1. Grease/Debris on Sides & Shelf <input type="checkbox"/>
4. Unpaved Alley <input type="checkbox"/>		4. Corroded <input type="checkbox"/>		<u>C. CLARITY OF FLOW:</u>	
5. Easement <input type="checkbox"/>		5. None <input type="checkbox"/>			1. Turbid Appearance <input type="checkbox"/>
6. Other _____					2. Clear Appearance <input type="checkbox"/>
					<u>D. FLOW:</u>
<u>B. MANHOLE COVER:</u>		<u>B. CONE:</u>		1. Steady <input type="checkbox"/>	
1. Serviceable <input type="checkbox"/>		1. Serviceable <input type="checkbox"/>		2. Pulsating <input type="checkbox"/>	
2. Damaged <input type="checkbox"/>		2. Broken <input type="checkbox"/>		3. Turbulent <input type="checkbox"/>	
3. Displaced <input type="checkbox"/>		3. Sulfided <input type="checkbox"/>		4. Surcharging <input type="checkbox"/>	
4. Missing <input type="checkbox"/>		4. Misaligned <input type="checkbox"/>		5. Sluggish <input type="checkbox"/>	
5. Needs Raising <input type="checkbox"/>		5. Leaking/Bad Joints <input type="checkbox"/>		<u>E. FLOW DEPTH COMPARED TO ADJACENT MANHOLES:</u>	
6. Needs Lowering <input type="checkbox"/>					1. Same <input type="checkbox"/>
					2. Lower <input type="checkbox"/>
<u>C. RING & FRAME:</u>		<u>C. RISER:</u>		3. Higher <input type="checkbox"/>	
1. Serviceable <input type="checkbox"/>		1. Serviceable <input type="checkbox"/>		<u>F. FLOW DEPTH:</u>	
2. Loose <input type="checkbox"/>		2. Broken <input type="checkbox"/>			1. _____ Inches
3. Displaced <input type="checkbox"/>		3. Sulfided <input type="checkbox"/>			2. Time _____ a.m./p.m.
4. Missing Grout <input type="checkbox"/>		4. Misaligned <input type="checkbox"/>		<u>G. VERMIN:</u>	
5. Needs Raising <input type="checkbox"/>		5. Leaking/Bad Joints <input type="checkbox"/>			1. Roaches <input type="checkbox"/>
6. Needs Lowering <input type="checkbox"/>					2. Rats <input type="checkbox"/>
<u>D. MANHOLE MATERIAL:</u>		<u>D. SHELF:</u>		3. Other _____	
1. Brick <input type="checkbox"/>		1. Serviceable <input type="checkbox"/>		<u>E. SIZE M.H. COVER:</u>	
2. Concrete <input type="checkbox"/>		2. Broken <input type="checkbox"/>			1. 24 Inch <input type="checkbox"/>
		3. Dirty/Sulfided <input type="checkbox"/>			2. 30 Inch <input type="checkbox"/>
		4. Bad Base Joint <input type="checkbox"/>		3. Other (size) _____	
		<u>E. CHANNEL:</u>		<u>F. MANHOLE SIZE:</u>	
		1. Serviceable <input type="checkbox"/>			1. 4 Foot <input type="checkbox"/>
		2. Obstructed <input type="checkbox"/>			2. 5 Foot <input type="checkbox"/>
		3. Sulfided <input type="checkbox"/>		3. Other (size) _____	
		4. Bad Pipe Joint <input type="checkbox"/>			
		5. Silt <input type="checkbox"/>			
		6. Poor Struct. Cond. <input type="checkbox"/>			
OBSERVATION SUMMARY:					
FOREMAN RECOMMENDATIONS:					
SUPERVISOR APPROVAL & COMMENTS:					

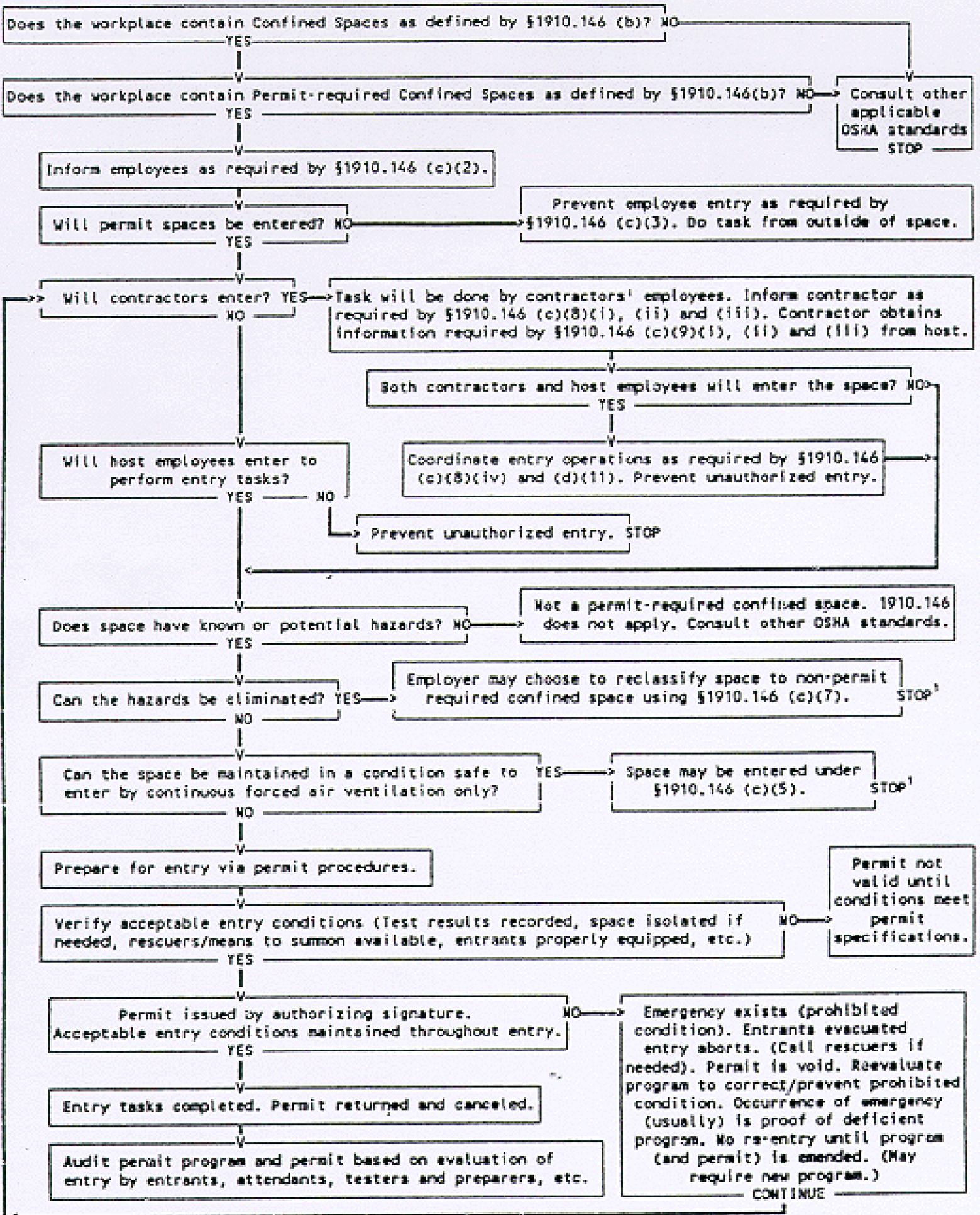
PIPE TO MANHOLE CONNECTION



APPENDIX D

CONFINED SPACE DOCUMENTS (OSHA)

APPENDIX A TO § 1910.146—PERMIT-REQUIRED CONFINED SPACE DECISION FLOW CHART



¹ Spaces may have to be evacuated and re-evaluated if hazards arise during entry

Procedures for Atmospheric Testing

OSHA 1910.146 Appendix B

Atmospheric testing is required for two distinct purposes: evaluation of the hazards of the permit space and verification that acceptable entry conditions for entry into that space exist.

1. Evaluation testing - The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that may exist or arise, so that appropriate permit entry procedures can be developed and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data, and development of the entry procedure, should be done by, or reviewed by, a technically qualified professional (e.g., OSHA consultation service, or certified industrial hygienist, registered safety engineer, certified safety professional, certified marine chemist, etc.) based on evaluation of all serious hazards.
2. Verification testing - The atmosphere of a permit space which may contain a hazardous atmosphere should be tested for residues of all contaminants identified by evaluation testing using permit specified equipment to determine that residual concentrations at the time of testing and entry are within the range of acceptable entry conditions. Results of testing (i.e., actual concentration, etc.) should be recorded on the permit in the space provided adjacent to the stipulated acceptable entry condition.
3. Duration of testing - Measurement of values for each atmospheric parameter should be made for at least the minimum response time of the test instrument specified by the manufacturer.
4. Testing stratified atmospheres - When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope should be tested a distance of approximately 4 feet (1.22 m) in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress should be slowed to accommodate the sampling speed and detector response.
5. Order of testing - A test for oxygen is performed first because most combustible gas meters are oxygen dependent and will not provide reliable readings in an oxygen deficient atmosphere. Combustible gases are tested for next because the threat of fire or explosion is both more immediate and more life threatening, in most cases, than exposure to toxic gases and vapors. If tests for toxic gases and vapors are necessary, they are performed last.

Example of Permit Required Confined Space Programs

OSHA 1910.146 Appendix C

Workplace: Sewer entry.

Potential hazards: The employees could be exposed to the following:

1. Engulfment.
2. Presence of toxic gases. Equal to or more than 10 ppm hydrogen sulfide measured as an 8-hour time-weighted average. If the presence of other toxic contaminants is suspected, specific monitoring programs will be developed.
3. Presence of explosive/flammable gases. Equal to or greater than 10% of the lower flammable limit (LFL).
4. Oxygen Deficiency. A concentration of oxygen in the atmosphere equal to or less than 19.5% by volume.

A. ENTRY WITHOUT PERMIT/ATTENDANT

Certification - Confined spaces may be entered without the need for a written permit or attendant provided that the space can be maintained in a safe condition for entry by mechanical ventilation alone, as provided in 1910.146(c)(5). All spaces shall be considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise. Any employee required or permitted to pre-check or enter an enclosed/confined space shall have successfully completed, as a minimum, the training as required by the following sections of these procedures. A written copy of operating and rescue procedures as required by these procedures shall be at the work site for the duration of the job. The Confined Space Pre-Entry Check List must be completed by the LEAD WORKER before entry into a confined space. This list verifies completion of items listed below. This check list shall be kept at the job site for duration of the job. If circumstances dictate an interruption in the work, the permit space must be re-evaluated and a new check list must be completed.

Control of atmospheric and engulfment hazards

Pumps and Lines - All pumps and lines which may reasonably cause contaminants to flow into the space shall be disconnected, blinded and locked out, or effectively isolated by other means to prevent development of dangerous air contamination or engulfment. Not all laterals to sewers or storm drains require blocking. However, where experience or knowledge of industrial use indicates there is a reasonable potential for contamination of air or engulfment into an occupied sewer, then all affected laterals shall be blocked. If blocking and/or isolation requires entry into the space the provisions for entry into a permit-required confined space must be implemented.

Surveillance - The surrounding area shall be surveyed to avoid hazards such as drifting vapors from the tanks, piping, or sewers.

Testing - The atmosphere within the space will be tested to determine whether dangerous air contamination and/or oxygen deficiency exists. Detector tubes, alarm only gas monitors and explosion

meters are examples of monitoring equipment that may be used to test permit space atmospheres. Testing shall be performed by the LEAD WORKER who has successfully completed the Gas Detector training for the monitor he will use. The minimum parameters to be monitored are oxygen deficiency, LFL, and hydrogen sulfide concentration. A written record of the pre-entry test results shall be made and kept at the work site for the duration of the job. The supervisor will certify in writing, based upon the results of the pre-entry testing, that all hazards have been eliminated. Affected employees shall be able to review the testing results. The most hazardous conditions shall govern when work is being performed in two adjoining, connecting spaces.

Entry Procedures - If there are no non-atmospheric hazards present and if the pre-entry tests show there is no dangerous air contamination and/or oxygen deficiency within the space and there is no reason to believe that any is likely to develop, entry into and work within may proceed. Continuous testing of the atmosphere in the immediate vicinity of the workers within the space shall be accomplished. The workers will immediately leave the permit space when any of the gas monitor alarm set points are reached as defined. Workers will not return to the area until a SUPERVISOR who has completed the gas detector training has used a direct reading gas detector to evaluate the situation and has determined that it is safe to enter.

Rescue - Arrangements for rescue services are not required where there is no attendant. See the rescue portion of section B., below, for instructions regarding rescue planning where an entry permit is required.

B. ENTRY PERMIT REQUIRED

Permits - Confined Space Entry Permit. All spaces shall be considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise. Any employee required or permitted to pre-check or enter a permit-required confined space shall have successfully completed, as a minimum, the training as required by the following sections of these procedures. A written copy of operating and rescue procedures as required by these procedures shall be at the work site for the duration of the job. The Confined Space Entry Permit must be completed before approval can be given to enter a permit-required confined space. This permit verifies completion of items listed below. This permit shall be kept at the job site for the duration of the job. If circumstances cause an interruption in the work or a change in the alarm conditions for which entry was approved, a new Confined Space Entry Permit must be completed.

Control of atmospheric and engulfment hazards

Surveillance - The surrounding area shall be surveyed to avoid hazards such as drifting vapors from tanks, piping or sewers.

Testing - The confined space atmosphere shall be tested to determine whether dangerous air contamination and/or oxygen deficiency exists. A direct reading gas monitor shall be used. Testing shall be performed by the SUPERVISOR who has successfully completed the gas detector training for the monitor he will use. The minimum parameters to be monitored are oxygen deficiency, LFL and hydrogen sulfide concentration. A written record of the pre-entry test results shall be made and kept at

the work site for the duration of the job. Affected employees shall be able to review the testing results. The most hazardous conditions shall govern when work is being performed in two adjoining, connected spaces.

Space Ventilation - Mechanical ventilation systems, where applicable, shall be set at 100% outside air. Where possible, open additional manholes to increase air circulation. Use portable blowers to augment natural circulation if needed. After a suitable ventilating period, repeat the testing. Entry may not begin until testing has demonstrated that the hazardous atmosphere has been eliminated.

Entry Procedures - The following procedure shall be observed under any of the following conditions: 1.) Testing demonstrates the existence of dangerous or deficient conditions and additional ventilation cannot reduce concentrations to safe levels; 2.) The atmosphere tests as safe but unsafe conditions can reasonably be expected to develop; 3.) It is not feasible to provide for ready exit from spaces equipped with automatic fire suppression systems and it is not practical or safe to deactivate such systems; or 4.) An emergency exists and it is not feasible to wait for pre-entry procedures to take effect.

All personnel must be trained. A self contained breathing apparatus shall be worn by any person entering the space. At least one worker shall stand by the outside of the space ready to give assistance in case of emergency. The standby worker shall have a self contained breathing apparatus available for immediate use. There shall be at least one additional worker within sight or call of the standby worker. Continuous powered communications shall be maintained between the worker within the confined space and standby personnel.

If at any time there is any questionable action or non-movement by the worker inside, a verbal check will be made. If there is no response, the worker will be moved immediately. Exception: If the worker is disabled due to falling or impact, he/she shall not be removed from the confined space unless there is immediate danger to his/her life. Local fire department rescue personnel shall be notified immediately. The standby worker may only enter the confined space in case of an emergency (wearing the self contained breathing apparatus) and only after being relieved by another worker. Safety belt or harness with attached lifeline shall be used by all workers entering the space with the free end of the line secured outside the entry opening. The standby worker shall attempt to remove a disabled worker via his lifeline before entering the space.

When practical, these spaces shall be entered through side openings -- those within 3 1/2 feet (1.07 m) of the bottom. When entry must be through a top opening, the safety belt shall be of the harness type that suspends a person upright and a hoisting device or similar apparatus shall be available for lifting workers out of the space.

In any situation where their use may endanger the worker, use of a hoisting device or safety belt and attached lifeline may be discontinued.

When dangerous air contamination is attributable to flammable and/or explosive substances, lighting and electrical equipment shall be Class 1, Division 1 rated per National Electrical Code and no ignition sources shall be introduced into the area.

Continuous gas monitoring shall be performed during all confined space operations. If alarm conditions change adversely, entry personnel shall exit the confined space and a new confined space permit issued.

Rescue - Call the fire department services for rescue. Where immediate hazards to injured personnel are present, workers at the site shall implement emergency procedures to fit the situation.

Sample Permits

OSHA 1910.146 Appendix D

Confined Space Entry Permit

Date and Time Issued: _____ Date and Time Expires: _____

Job site/Space I.D.: _____ Job Supervisor: _____

Equipment to be worked on: _____ Work to be performed: _____

Stand-by personnel: _____

1. Atmospheric Checks: Time _____
Oxygen _____ %
Explosive _____ % L.F.L.
Toxic _____ PPM

2. Tester's signature: _____

3. Source isolation (No Entry): N/A Yes No
Pumps or lines blinded, () () ()
disconnected, or blocked () () ()

4. Ventilation Modification: N/A Yes No
Mechanical () () ()
Natural Ventilation only () () ()

5. Atmospheric check after
isolation and Ventilation:
Oxygen _____ % > 19.5 %
Explosive _____ % L.F.L. < 10 %
Toxic _____ PPM < 10 PPM H(2)S
Time _____
Testers signature: _____

6. Communication procedures: _____

7. Rescue procedures: _____

8. Entry, standby, and back up persons: Yes No
Successfully completed required
training? () ()
Is it current? () ()

9. Equipment: N/A Yes No
Direct reading gas monitor -
tested () () ()
Safety harnesses and lifelines

for entry and standby persons	()	()	()
Hoisting equipment	()	()	()
Powered communications	()	()	()
SCBA's for entry and standby persons	()	()	()
Protective Clothing	()	()	()
All electric equipment listed Class I, Division I, Group D and Non-sparking tools	()	()	()

10. Periodic atmospheric tests:

Oxygen	_____%	Time _____	Oxygen	_____%	Time _____
Oxygen	_____%	Time _____	Oxygen	_____%	Time _____
Explosive	_____%	Time _____	Explosive	_____%	Time _____
Explosive	_____%	Time _____	Explosive	_____%	Time _____
Toxic	_____%	Time _____	Toxic	_____%	Time _____
Toxic	_____%	Time _____	Toxic	_____%	Time _____

We have reviewed the work authorized by this permit and the information contained here-in. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.

Permit Prepared By:

(Supervisor) _____

Approved By: (Unit

Supervisor) _____

Reviewed By (Cs Operations Personnel) :

(printed name)

(signature)

This permit to be kept at job site. Return job site copy to Safety Office following job completion.

Copies: White Original (Safety Office)
 Yellow (Unit Supervisor)
 Hard(Job site)

ENTRY PERMIT

PERMIT VALID FOR 8 HOURS ONLY. ALL COPIES OF PERMIT WILL REMAIN AT JOB SITE UNTIL JOB IS COMPLETED

DATE: - - SITE LOCATION and DESCRIPTION _____
 PURPOSE OF ENTRY _____
 SUPERVISOR(S) in charge of crews Type of Crew Phone # _____

COMMUNICATION PROCEDURES _____
 RESCUE PROCEDURES (PHONE NUMBERS AT BOTTOM) _____

* BOLD DENOTES MINIMUM REQUIREMENTS TO BE COMPLETED AND REVIEWED PRIOR TO ENTRY*

REQUIREMENTS COMPLETED	DATE	TIME
Lock Out/De-energize/Try-out	_____	_____
Line(s) Broken-Capped-Blanked	_____	_____
Purge-Flush and Vent	_____	_____
Ventilation	_____	_____
Secure Area (Post and Flag)	_____	_____
Breathing Apparatus	_____	_____
Resuscitator - Inhalator	_____	_____
Standby Safety Personnel	_____	_____
Full Body Harness w/"D" ring	_____	_____
Emergency Escape Retrieval Equip	_____	_____
Lifelines	_____	_____
Fire Extinguishers	_____	_____
Lighting (Explosive Proof)	_____	_____
Protective Clothing	_____	_____
Respirator(s) (Air Purifying)	_____	_____
Burning and Welding Permit	_____	_____

Note: Items that do not apply enter N/A in the blank.

****RECORD CONTINUOUS MONITORING RESULTS EVERY 2 HOURS**

CONTINUOUS MONITORING**	Permissible	_____
TEST(S) TO BE TAKEN	Entry Level	_____
PERCENT OF OXYGEN	19.5% to 23.5%	_____
LOWER FLAMMABLE LIMIT	Under 10%	_____
CARBON MONOXIDE	+35 PPM	_____
Aromatic Hydrocarbon	+ 1 PPM * 5PPM	_____
Hydrogen Cyanide	(Skin) * 4PPM	_____
Hydrogen Sulfide	+10 PPM *15PPM	_____
Sulfur Dioxide	+ 2 PPM * 5PPM	_____
Ammonia	*35PPM	_____

* Short-term exposure limit: Employee can work in the area up to 15 minutes.

+ 8 hr. Time Weighted Avg.: Employee can work in area 8 hrs (longer with appropriate respiratory protection).

REMARKS:

GAS TESTER NAME & CHECK #	INSTRUMENT(S) USED	MODEL &/OR TYPE	SERIAL &/OR UNIT #
_____	_____	_____	_____
_____	_____	_____	_____

SAFETY STANDBY PERSON IS REQUIRED FOR ALL CONFINED SPACE WORK

SAFETY STANDBY PERSON(S)	CHECK #	CONFINED SPACE	CHECK #	CONFINED SPACE	CHECK #
_____	_____	_____	_____	_____	_____

ENTRANT(S)

ENTRANT(S)

SUPERVISOR AUTHORIZING - ALL CONDITIONS SATISFIED _____

DEPARTMENT/PHONE _____

AMBULANCE 2800 FIRE 2900 Safety 4901 Gas Coordinator 4529/5387

APPENDIX E

SANITARY SEWER MAINTENANCE POLICY

SANITARY SEWER MAINTENANCE POLICY

PURPOSE AND OBJECTIVE:

To provide Washington City (hereinafter 'the City') and property owners a clear description of the parties' responsibility for the operation and maintenance of sanitary sewer lines.

PROCEDURES AND RESPONSIBILITIES:

1. Washington City shall operate and maintain all sewer mains and trunk lines within the City.
2. Except for plugs, backups or blockages in laterals, Washington City shall maintain laterals from the main trunk line to the private property line.
3. Maintenance of plugs, backups or blockages in laterals extending to private property shall be the responsibility of the property owner to whose property the line extends.
4. Property owners have the responsibility to maintain the lateral from the property line to the home or structure. This includes maintenance of broken or plugged lines, root removal, or any other related problems.
5. Property owners shall be solely responsible for operation and maintenance of all private sewer connections or laterals.

SERVICES PROVIDED:

The City will respond to sewer backups or repair requests even if the line to be repaired may be a private sewer lateral. In the event that a private line needs repair, the City will not be responsible to make the needed repairs, but will assist the property owner to the extent reasonably appropriate. This assistance may include locating cleanouts, locating laterals, providing mapping information, making recommendations for remediation or repairs, and providing emergency services not otherwise available.

APPENDIX F

SSO FORMS



A. SPILL LOCATION

Street Name and Number: _____

City: _____ County: _____ Zip Code: _____

Public Street Private (Residence) Private (Business) City-Owned Other _____

B. SPILL TIME LOG

Start of Spill:	Date:	Time:	<input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
City Notified:	Date:	Time:	<input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
WWS Notified:	Date:	Time:	<input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
Sewer Crew Dispatched:	Date:	Time:	<input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
Sewer Crew Arrival:	Date:	Time:	<input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
Spill Stopped:	Date:	Time:	<input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
Spill Contained:	Date:	Time:	<input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
Spill Cleaned Up:	Date:	Time:	<input type="checkbox"/> A.M. <input type="checkbox"/> P.M.

C. SPILL DESCRIPTION / CAUSE

Spill Site: Gravity Sewer Force Main Manhole Building/Structure Pump Station
 Other Sewer System Structure _____ Other _____

ID# (if applicable): _____ Approximate Spill Volume (gallons): _____

Location of Blockage: Main Lateral Private Lateral Other _____

SSO Cause(s): Blocked Sewer Pipe Failure Mechanical Malfunction Vandalism
 Construction of Other Utilities Natural Disaster Other _____

Description: _____

If causes included blocked sewer indicate if any of the following apply:
 Flow exceeded the capacity of the sewer pipe.
 Buildup of FOG contributed to blockage.

D. SPILL RESPONSE

Spill Response Activities: Stopped the cause of SSO Requested additional resources Performed TV Inspection
 Contained the SSO Flushed and cleaned the area Disinfected the site (where appropriate)
 Other: _____

Other Comments: _____

Name of impacted waters (if applicable): _____

Comments from visual inspection of impacted waters: _____

Were health warnings posted (if applicable)? Yes No N/A Was the Washington County Health Department contacted (if applicable)? Yes No N/A



E. SPILL CLASSIFICATION

Was the backup caused by a private lateral? Yes No
 – If “Yes” then the spill is neither a Class 1 nor Class 2 SSO.
 – If “No” then the spill is either a Class 1 or Class 2 SSO.

Check the following that apply:

Spill affected more than five structures
 A public, commercial, or industrial structure was affected
 Spill posed a possible public health risk to the general public
 Spill volume exceeded 5,000 gallons (excluding those in single private structures)
 Spill volume discharged to waters of the State

– If one or more of the above are checked and the backup was not caused by a private lateral, the spill is a Class 1 SSO.
 – If none of the above are checked and the backup was not caused by a private lateral, the spill is a Class 2 SSO.

Based on the information above, what is the classification of the spill?

Class 1 SSO Class 2 SSO Neither (private lateral)

F. COMMENTS

Use this area to record comments made by the general public, other agencies, property owners, etc.

Name: _____ Phone Number: _____

Category of commenter (i.e. general public, private property owner): _____

Comments: _____

Name: _____ Phone Number: _____

Category of commenter (i.e. general public, private property owner): _____

Comments: _____

Name: _____ Phone Number: _____

Category of commenter (i.e. general public, private property owner): _____

Comments: _____

APPENDIX G

FSE INSPECTION FORM



FACILITY INFORMATION	
Facility Name:	ID Number:
Facility Address:	City, Zip:
Address:	Facility Phone No.:
Owner:	Owner Phone No.:
Correspondents during inspection:	
Inspection Date:	Inspection duration:
Inspection Type: <input type="checkbox"/> Routine <input type="checkbox"/> Monitoring <input type="checkbox"/> Enforcement <input type="checkbox"/> Follow-up	

TYPE OF FACILITY	
<input type="checkbox"/> Fast Food	<input type="checkbox"/> Restaurant
<input type="checkbox"/> Grocery	<input type="checkbox"/> Bakery
<input type="checkbox"/> Deli	<input type="checkbox"/> Meat Market
<input type="checkbox"/> Donut Shop	<input type="checkbox"/> Ice Cream
<input type="checkbox"/> Other	_____

GREASE REMOVAL SYSTEM							
TYPE	RECYCLE BIN	VAULT	TRAP	BIG DIPPER	MANUAL	OTHER	NONE
# of Units							
Size							
Condition							
Short Circuiting							
Plumbing Condition							
Foreign Objects							
Fecal Matter							

Garbage Disposal Unit	<input type="checkbox"/> Yes <input type="checkbox"/> No	Method of Solids Disposal:	_____
Grease Storage Unit	Location? <input type="checkbox"/> Inside <input type="checkbox"/> Outside	Covered & Bermed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Discharge to Sewer?	<input type="checkbox"/> Yes <input type="checkbox"/> No

EQUIPMENT WASHING PROCEDURES	
Location of cleaning mats, etc.	<input type="checkbox"/> Indoors <input type="checkbox"/> Outdoors
Additional Comments	
If outdoors, is area covered and bermed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Discharge to Grease Trap/Vault?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Discharge to Stormwater System?	<input type="checkbox"/> Yes <input type="checkbox"/> No

MAINTENANCE RECORDS	
Maintenance records at facility:	
Cleaning firm or hauler:	
Date last serviced:	
Grease removal on a schedule:	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, what schedule:
Samples collected:	<input type="checkbox"/> Yes <input type="checkbox"/> No Description:
NOV issued:	<input type="checkbox"/> Yes <input type="checkbox"/> No Violations to be corrected by:

REQUIRED ACTIONS / COMMENTS

Signature of Inspector _____	Date _____
Title _____	

APPENDIX H

EXCERPTS FROM WASTEWATER MASTER PLAN

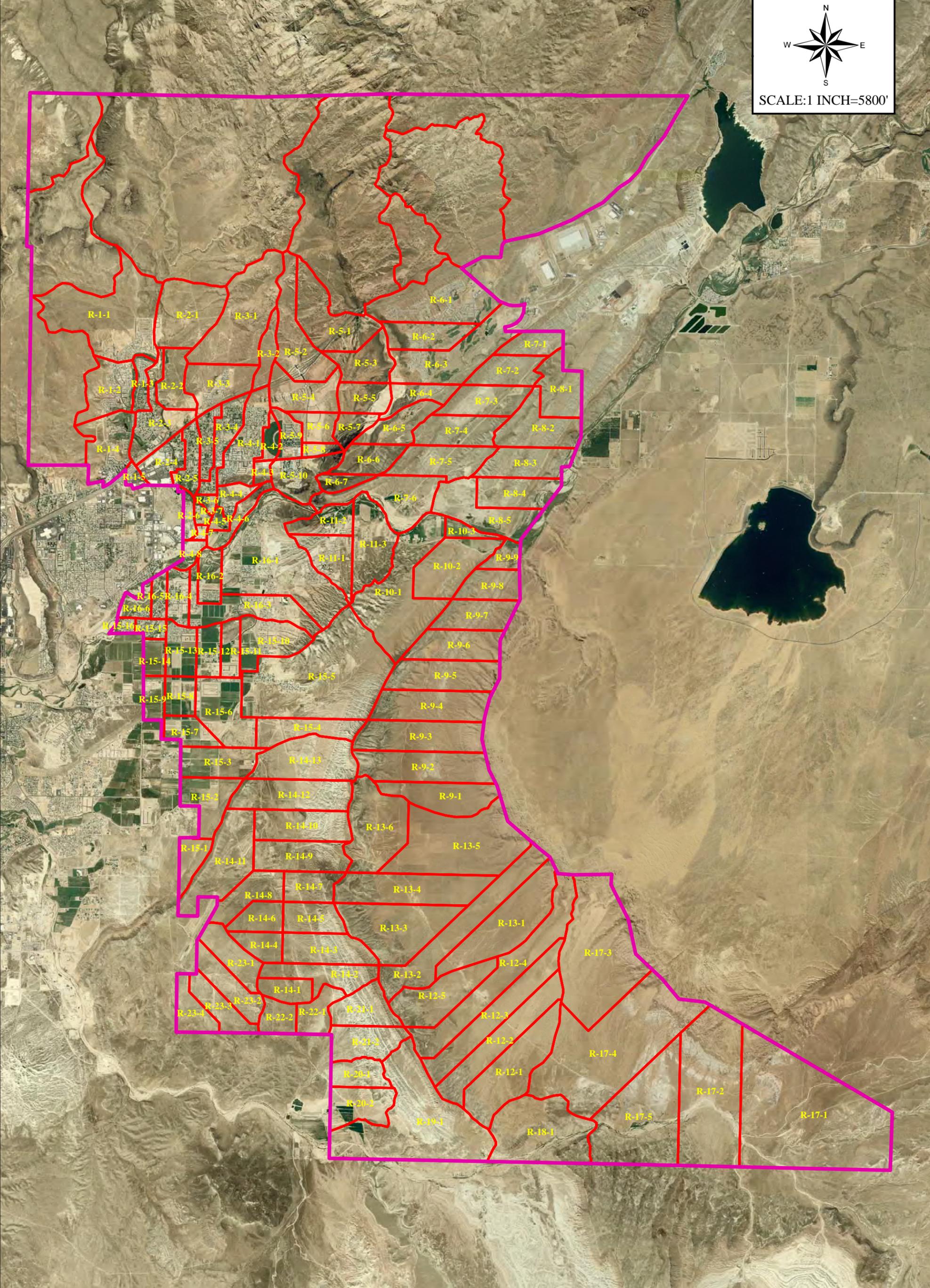
Table H.1 Summary of Collection Basin and Sub-Basin Growth Rates and Estimated Connections

BASIN	SUB-BASIN	2008		5-YEAR		10-YEAR		20-YEAR		BUILDOUT
		EXIST. CON.	GRO RATE	EST. CON	GRO RATE	EST. CON	GRO RATE	EST. CON	EST. CON	
		(Active)	(%)	(2013)	(%)	(2018)	(%)	(2028)		
R-1	R-1-1	261	8%	383	7%	537	5%	875	905	
	R-1-2	234	4%	285	3%	330	5%	538	547	
	R-1-3	172	2%	190	1%	200	2%	244	245	
	R-1-4	142	8%	208	10%	335	10%	870	895	
	R-1-5	23	8%	33	15%	67	15%	271	319	
	TOTAL	832	6%	1,100	6%	1,470	7%	2,798	2,910	
R-2	R-2-1	23	30%	87	10%	140	15%	568	784	
	R-2-2	36	30%	135	7%	190	12%	589	816	
	R-2-3	506	2%	559	4%	680	3%	914	1,352	
	R-2-4	103	6%	138	7%	193	6%	346	1,523	
	R-2-5	164	6%	220	6%	294	6%	527	654	
	R-2-6	2	10%	3	20%	6	25%	60	159	
TOTAL	835	6%	1,141	6%	1,504	7%	3,004	5,288		
R-3	R-3-1	0	0%	75	10%	121	15%	489	1,200	
	R-3-2	0	0%	10	10%	16	25%	150	363	
	R-3-3	180	8%	264	16%	555	8%	1,198	1,322	
	R-3-4	281	5%	359	5%	458	2%	558	662	
	R-3-5	172	5%	220	7%	309	3%	415	506	
	R-3-6	1	40%	4	35%	20	10%	51	71	
	R-3-7	2	20%	6	15%	12	10%	32	78	
TOTAL	636	8%	938	10%	1,490	7%	2,891	4,202		
R-4	R-4-1	485	5%	619	3%	718	2%	875	1,008	
	R-4-2	0	0%	20	20%	50	20%	308	329	
	R-4-3	0	0%	20	15%	40	8%	87	103	
	R-4-4	111	0%	111	0%	111	0%	111	102	
	R-4-5	36	5%	45	4%	55	3%	74	80	
	R-4-6	4	10%	7	20%	16	20%	100	103	
	R-4-7	5	10%	8	20%	19	5%	32	32	
	R-4-8	9	10%	14	20%	36	5%	58	69	
TOTAL	649	5%	844	4%	1,045	5%	1,645	1,827		
R-5	R-5-1	0	0%	20	30%	74	8%	160	529	
	R-5-2	0	0%	40	20%	100	8%	215	881	
	R-5-3	2	50%	18	20%	46	8%	99	710	
	R-5-4	78	5%	99	6%	133	3%	178	1,523	
	R-5-5	108	5%	137	5%	175	2%	214	345	
	R-5-6	102	5%	130	5%	166	3%	223	597	
	R-5-7	37	5%	48	6%	64	3%	85	209	
	R-5-8	0	0%	5	6%	7	3%	9	212	
	R-5-9	235	3%	272	3%	316	3%	424	584	
	R-5-10	107	6%	143	6%	191	3%	257	561	
TOTAL	669	6%	913	7%	1,271	4%	1,866	6,150		
R-6	R-6-1	451	3%	523	3%	606	2%	739	1,176	
	R-6-2	105	3%	122	3%	141	2%	172	303	
	R-6-3	206	2%	228	2%	252	2%	307	1,247	
	R-6-4	145	1%	152	1%	160	1%	177	199	
	R-6-5	11	5%	14	3%	17	5%	27	296	
	R-6-6	0	0%	5	3%	6	2%	7	350	
	R-6-7	0	0%	0	0%	0	0%	0	3	
TOTAL	919	3%	1,045	3%	1,182	2%	1,429	3,573		
R-7	R-7-1	0	0%	0	0%	0	0%	20	30	
	R-7-2	0	0%	0	0%	0	0%	50	103	
	R-7-3	0	0%	0	0%	0	0%	80	167	
	R-7-4	0	0%	0	0%	0	0%	150	208	
	R-7-5	0	0%	0	0%	0	0%	350	610	
	R-7-6	0	0%	0	0%	0	0%	350	678	
TOTAL	0	0%	0	0%	0	0%	1,000	1,795		
R-8	R-8-1	0	0%	0	0%	0	0%	75	94	
	R-8-2	0	0%	0	0%	0	0%	125	513	
	R-8-3	0	0%	0	0%	0	0%	300	614	
	R-8-4	0	0%	0	0%	0	0%	200	1,023	
	R-8-5	0	0%	0	0%	0	0%	300	1,616	
TOTAL	0	0%	0	0%	0	0%	1,000	3,860		
R-9	R-9-1	0	0%	0	0%	0	0%	83	297	
	R-9-2	0	0%	0	0%	0	0%	83	196	
	R-9-3	0	0%	0	0%	0	0%	83	154	
	R-9-4	0	0%	0	0%	0	0%	83	347	
	R-9-5	0	0%	0	0%	0	0%	83	394	
	R-9-6	0	0%	0	0%	0	0%	83	380	
	R-9-7	0	0%	0	0%	0	0%	83	246	
	R-9-8	0	0%	0	0%	0	0%	83	188	
	R-9-9	0	0%	0	0%	0	0%	83	383	
TOTAL	0	0%	0	0%	0	0%	747	2,586		
R-10	R-10-1	0	0%	0	0%	25	10%	65	219	
	R-10-2	0	0%	0	0%	50	10%	130	737	
	R-10-3	0	0%	0	0%	25	10%	65	248	
	TOTAL	0	0%	0	0%	100	10%	259	1,205	
R-11	R-11-1	34	8%	50	8%	73	8%	159	278	
	R-11-2	5	15%	10	10%	16	8%	34	86	
	R-11-3	13	12%	23	15%	46	12%	143	234	
	TOTAL	52	10%	83	10%	135	10%	335	597	
R-12	R-12-1	0	0%	0	0%	0	0%	0	212	
	R-12-2	0	0%	0	0%	0	0%	0	136	
	R-12-3	0	0%	0	0%	0	0%	0	140	
	R-12-4	0	0%	0	0%	0	0%	0	189	
	R-12-5	0	0%	0	0%	0	0%	0	119	
	TOTAL	0	0%	0	0%	0	0%	0	795	
	R-13	R-13-1	0	0%	0	0%	0	0%	0	41
		R-13-2	0	0%	0	0%	0	0%	0	43
		R-13-3	0	0%	0	0%	0	0%	0	64
		R-13-4	0	0%	0	0%	0	0%	0	68
		R-13-5	0	0%	0	0%	0	0%	0	91
		R-13-6	0	0%	0	0%	0	0%	0	7
R-13-7		0	0%	0	0%	0	0%	0	63	
TOTAL		0	0%	0	0%	0	0%	0	314	
R-14	R-14-1	0	0%	1	15%	2	20%	12	247	
	R-14-2	0	0%	2	15%	4	20%	25	261	
	R-14-3	0	0%	3	15%	6	20%	37	218	
	R-14-4	0	0%	3	15%	6	20%	37	222	
	R-14-5	0	0%	4	15%	8	20%	50	152	
	R-14-6	0	0%	4	15%	8	20%	50	203	
	R-14-7	0	0%	4	15%	8	20%	50	127	
	R-14-8	0	0%	4	15%	8	20%	50	190	
	R-14-9	0	0%	5	15%	10	20%	62	722	
	R-14-10	0	0%	10	35%	45	8%	97	505	
	R-14-11	0	0%	15	35%	67	8%	145	274	
	R-14-12	0	0%	20	35%	90	8%	194	302	
	R-14-13	0	0%	25	35%	112	5%	183	233	
	TOTAL	0	0%	100	30%	374	10%	992	3,657	
R-15	R-15-1	0	0%	5	10%	8	10%	21	61	
	R-15-2	0	0%	10	20%	25	10%	65	171	
	R-15-3	0	0%	10	20%	25	10%	65	302	
	R-15-4	1	50%	6	30%	23	10%	59	221	
	R-15-5	118	2%	131	10%	210	10%	545	765	
	R-15-6	88	2%	97	10%	157	12%	487	686	
	R-15-7	69	2%	76	2%	84	1%	93	99	
	R-15-8	57	3%	67	2%	74	1%	81	83	
	R-15-9	3	50%	25	20%	61	12%	190	247	
	R-15-10	228	2%	252	2%	278	4%	412	469	
	R-15-11	37	2%	41	6%	55	8%	119	161	
	R-15-12	46	2%	51	6%	68	7%	134	166	
	R-15-13	155	2%	171	2%	189	1%	208	224	
	R-15-14	5	30%	18	12%	32	7%	63	87	
	R-15-15	69	2%	76	2%	84	1%	93	117	
	R-15-16	33	1%	35	1%	37	0%	37	39	
TOTAL	910	3%	1,070	6%	1,409	7%	2,671	3,896		
R-16	R-16-1	446	3%	517	6%	692	4%	1,025	1,194	
	R-16-2	107	3%	124	3%	144	3%	193	209	
	R-16-3	288	3%	334	4%	407	3%	546	632	
	R-16-4	160	3%	185	2%	204	2%	249	275	
	R-16-5	35	3%	40	5%	52	5%	84	100	
	R-16-6	28	3%	32	8%	47	6%	84	100	
	TOTAL	1063	3%	1,232	5%	1,545	4%	2,181	2,510	
R-17	R-17-1	0	0%	0	0%	0	0%	40	227	
	R-17-2	0	0%	0	0%	0	0%	40	135	
	R-17-3	0	0%	0	0%	0	0%	40	278	
	R-17-4	0	0%	0	0%	0	0%	40	509	
	R-17-5	0	0%	0	0%	0	0%	40	163	
	TOTAL	0	0%	0	0%	0	0%	200	1,312	
R-18	R18-1	0	0%	0	0%	0	0%	25	55	
	TOTAL	0	0%	0	0%	0	0%	25	55	
R-19	R-19-1	0	0%	10	30%	37	20%	230	445	
	TOTAL	0	0%	10	30%	37	20%	230	445	
	R-20-1	0	0%	10	12%	18	15%	71	83	
R-20	R-20-2	0	0%	10	12%	18	15%	71	209	
	TOTAL	0	0%	20	12%	35	15%	143	292	
	R-21-1	0	0%	5	20%	12	10%	32	55	
R-21	R-21-2	0	0%	5	20%	12	10%	32	80	
	TOTAL	0	0%							

Table B.4 Summary of Collection Basin and Sub-Basin Wastewater Flows

BASIN	SUB-BASIN	WASTEWATER DESIGN FLOWS				
		EXISTING G	5-YEAR ANALYSI	10-YEAR ANALYSI	20-YEAR ANALYSI	BUILDOUT CONDITION
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
R-1	R-1-1	0.36	0.53	0.75	1.22	1.26
	R-1-2	0.33	0.40	0.46	0.75	0.76
	R-1-3	0.24	0.26	0.28	0.34	0.34
	R-1-4	0.20	0.29	0.47	1.21	1.24
	R-1-5	0.03	0.05	0.09	0.38	0.44
	TOTAL	1.16	1.53	2.04	3.89	4.05
R-2	R-2-1	0.03	0.12	0.20	0.79	1.09
	R-2-2	0.05	0.19	0.26	0.82	1.13
	R-2-3	0.70	0.78	0.95	1.27	1.88
	R-2-4	0.14	0.19	0.27	0.48	2.12
	R-2-5	0.23	0.31	0.41	0.73	0.91
	R-2-6	0.00	0.00	0.01	0.08	0.22
TOTAL	1.16	1.59	2.09	4.18	7.35	
R-3	R-3-1	0.00	0.10	0.17	0.68	1.67
	R-3-2	0.00	0.01	0.02	0.21	0.51
	R-3-3	0.25	0.37	0.77	1.67	1.84
	R-3-4	0.39	0.50	0.64	0.78	0.92
	R-3-5	0.24	0.31	0.43	0.58	0.70
	R-3-6	0.00	0.01	0.03	0.07	0.10
	R-3-7	0.00	0.01	0.02	0.04	0.11
TOTAL	0.89	1.30	2.07	4.02	5.84	
R-4	R-4-1	0.67	0.86	1.00	1.22	1.40
	R-4-2	0.00	0.03	0.07	0.43	0.46
	R-4-3	0.00	0.03	0.06	0.12	0.14
	R-4-4	0.15	0.15	0.15	0.15	0.14
	R-4-5	0.05	0.06	0.08	0.10	0.11
	R-4-6	0.01	0.01	0.02	0.14	0.14
	R-4-7	0.01	0.01	0.03	0.04	0.04
	R-4-8	0.01	0.02	0.05	0.08	0.10
TOTAL	0.90	1.17	1.45	2.29	2.54	
R-5	R-5-1	0.00	0.03	0.10	0.22	0.74
	R-5-2	0.00	0.06	0.14	0.30	1.23
	R-5-3	0.00	0.03	0.06	0.14	0.99
	R-5-4	0.11	0.14	0.18	0.25	2.12
	R-5-5	0.15	0.19	0.24	0.30	0.48
	R-5-6	0.14	0.18	0.23	0.31	0.83
	R-5-7	0.05	0.07	0.09	0.12	0.29
	R-5-8	0.00	0.01	0.01	0.01	0.29
	R-5-9	0.33	0.38	0.44	0.59	0.81
	R-5-10	0.15	0.20	0.27	0.36	0.78
TOTAL	0.93	1.27	1.77	2.59	8.55	
R-6	R-6-1	0.63	0.73	0.84	1.03	1.64
	R-6-2	0.15	0.17	0.20	0.24	0.42
	R-6-3	0.29	0.32	0.35	0.43	1.73
	R-6-4	0.20	0.21	0.22	0.25	0.28
	R-6-5	0.02	0.02	0.02	0.04	0.41
	R-6-6	0.00	0.01	0.01	0.01	0.49
	R-6-7	0.00	0.00	0.00	0.00	0.00
TOTAL	1.28	1.45	1.64	1.99	4.97	
R-7	R-7-1	0.00	0.00	0.00	0.03	0.04
	R-7-2	0.00	0.00	0.00	0.07	0.14
	R-7-3	0.00	0.00	0.00	0.11	0.23
	R-7-4	0.00	0.00	0.00	0.21	0.29
	R-7-5	0.00	0.00	0.00	0.49	0.85
	R-7-6	0.00	0.00	0.00	0.49	0.94
TOTAL	0.00	0.00	0.00	1.39	2.50	
R-8	R-8-1	0.00	0.00	0.00	0.10	0.13
	R-8-2	0.00	0.00	0.00	0.17	0.71
	R-8-3	0.00	0.00	0.00	0.42	0.85
	R-8-4	0.00	0.00	0.00	0.28	1.42
	R-8-5	0.00	0.00	0.00	0.42	2.25
TOTAL	0.00	0.00	0.00	1.39	5.37	
R-9	R-9-1	0.00	0.00	0.00	0.12	0.41
	R-9-2	0.00	0.00	0.00	0.12	0.27
	R-9-3	0.00	0.00	0.00	0.12	0.21
	R-9-4	0.00	0.00	0.00	0.12	0.48
	R-9-5	0.00	0.00	0.00	0.12	0.55
	R-9-6	0.00	0.00	0.00	0.12	0.53
	R-9-7	0.00	0.00	0.00	0.12	0.34
	R-9-8	0.00	0.00	0.00	0.12	0.26
	R-9-9	0.00	0.00	0.00	0.12	0.53
TOTAL	0.00	0.00	0.00	1.04	3.60	
R-10	R-10-1	0.00	0.00	0.03	0.09	0.30
	R-10-2	0.00	0.00	0.07	0.18	1.03
	R-10-3	0.00	0.00	0.03	0.09	0.35
	TOTAL	0.00	0.00	0.14	0.36	1.68
R-11	R-11-1	0.05	0.07	0.10	0.22	0.39
	R-11-2	0.01	0.01	0.02	0.05	0.12
	R-11-3	0.02	0.03	0.06	0.20	0.33
	TOTAL	0.07	0.11	0.19	0.47	0.83

BASIN	SUB-BASIN	WASTEWATER DESIGN FLOWS				
		EXISTING	5-YEAR ANALYSI	10-YEAR ANALYSI	20-YEAR ANALYSI	BUILDOUT CONDITION
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
R-12	R-12-1	0.00	0.00	0.00	0.06	0.29
	R-12-2	0.00	0.00	0.00	0.06	0.19
	R-12-3	0.00	0.00	0.00	0.06	0.20
	R-12-4	0.00	0.00	0.00	0.06	0.26
	R-12-5	0.00	0.00	0.00	0.06	0.16
	TOTAL	0.00	0.00	0.00	0.28	1.11
R-13	R-13-1	0.00	0.00	0.00	0.06	0.57
	R-13-2	0.00	0.00	0.00	0.06	0.61
	R-13-3	0.00	0.00	0.00	0.09	0.89
	R-13-4	0.00	0.00	0.00	0.09	0.95
	R-13-5	0.00	0.00	0.00	0.13	1.27
	R-13-6	0.00	0.00	0.00	0.01	0.09
TOTAL	0.00	0.00	0.00	0.44	4.37	
R-14	R-14-1	0.00	0.00	0.00	0.02	0.34
	R-14-2	0.00	0.00	0.01	0.03	0.36
	R-14-3	0.00	0.00	0.01	0.05	0.30
	R-14-4	0.00	0.00	0.01	0.05	0.31
	R-14-5	0.00	0.01	0.01	0.07	0.21
	R-14-6	0.00	0.01	0.01	0.07	0.28
	R-14-7	0.00	0.01	0.01	0.07	0.18
	R-14-8	0.00	0.01	0.01	0.07	0.26
	R-14-9	0.00	0.01	0.01	0.09	1.00
	R-14-10	0.00	0.01	0.06	0.13	0.70
	R-14-11	0.00	0.02	0.09	0.20	0.38
	R-14-12	0.00	0.03	0.12	0.27	0.42
	R-14-13	0.00	0.03	0.16	0.25	0.32
TOTAL	0.00	0.14	0.52	1.38	5.09	
R-15	R-15-1	0.00	0.01	0.01	0.03	0.08
	R-15-2	0.00	0.01	0.03	0.09	0.24
	R-15-3	0.00	0.01	0.03	0.09	0.42
	R-15-4	0.00	0.01	0.03	0.08	0.31
	R-15-5	0.16	0.18	0.29	0.76	1.06
	R-15-6	0.12	0.14	0.22	0.68	0.95
	R-15-7	0.10	0.11	0.12	0.13	0.14
	R-15-8	0.08	0.09	0.10	0.11	0.12
	R-15-9	0.00	0.03	0.09	0.26	0.34
	R-15-10	0.32	0.35	0.39	0.57	0.65
	R-15-11	0.05	0.06	0.08	0.17	0.22
	R-15-12	0.06	0.07	0.09	0.19	0.23
	R-15-13	0.22	0.24	0.26	0.29	0.31
	R-15-14	0.01	0.03	0.04	0.09	0.12
R-15-15	0.10	0.11	0.12	0.13	0.16	
R-15-16	0.05	0.05	0.05	0.05	0.05	
TOTAL	1.27	1.49	1.96	3.71	5.42	
R-16	R-16-1	0.62	0.72	0.96	1.42	1.66
	R-16-2	0.15	0.17	0.20	0.27	0.29
	R-16-3	0.40	0.46	0.57	0.76	0.88
	R-16-4	0.22	0.26	0.28	0.35	0.38
	R-16-5	0.05	0.06	0.07	0.12	0.14
	R-16-6	0.04	0.04	0.07	0.12	0.14
TOTAL	1.48	1.71	2.15	3.03	3.49	
R-17	R-17-1	0.00	0.00	0.00	0.06	0.32
	R-17-2	0.00	0.00	0.00	0.06	0.19
	R-17-3	0.00	0.00	0.00	0.06	0.39
	R-17-4	0.00	0.00	0.00	0.06	0.71
	R-17-5	0.00	0.00	0.00	0.06	0.23
TOTAL	0.00	0.00	0.00	0.28	1.82	
R-18	R18-1	0.00	0.00	0.00	0.03	0.08
TOTAL	0.00	0.00	0.00	0.03	0.08	
R-19	R-19-1	0.00	0.01	0.05	0.32	0.62
TOTAL	0.00	0.01	0.05	0.32	0.62	
R-20	R-20-1	0.00	0.01	0.02	0.10	0.12
	R-20-2	0.00	0.01	0.02	0.10	0.29
	TOTAL	0.00	0.03	0.05	0.20	0.41
R-21	R-21-1	0.00	0.01	0.02	0.04	0.08
	R-21-2	0.00	0.01	0.02	0.04	0.11
	TOTAL	0.00	0.01	0.03	0.09	0.19
R-22	R-22-1	0.00	0.02	0.11	0.24	0.35
	R-22-2	0.00	0.01	0.07	0.16	0.33
	TOTAL	0.00	0.03	0.19	0.40	0.69
R-23	R-23-1	0.00	0.01	0.11	0.17	0.35
	R-23-2	0.00	0.01	0.05	0.17	0.37
	R-23-3	0.00	0.01	0.05	0.17	0.30
	R-23-4	0.00	0.01	0.05	0.08	0.12
TOTAL	0.00	0.03	0.26	0.60	1.14	



WASHINGTON CITY

WASTEWATER COLLECTION SUB-BASINS

FIGURE A.6

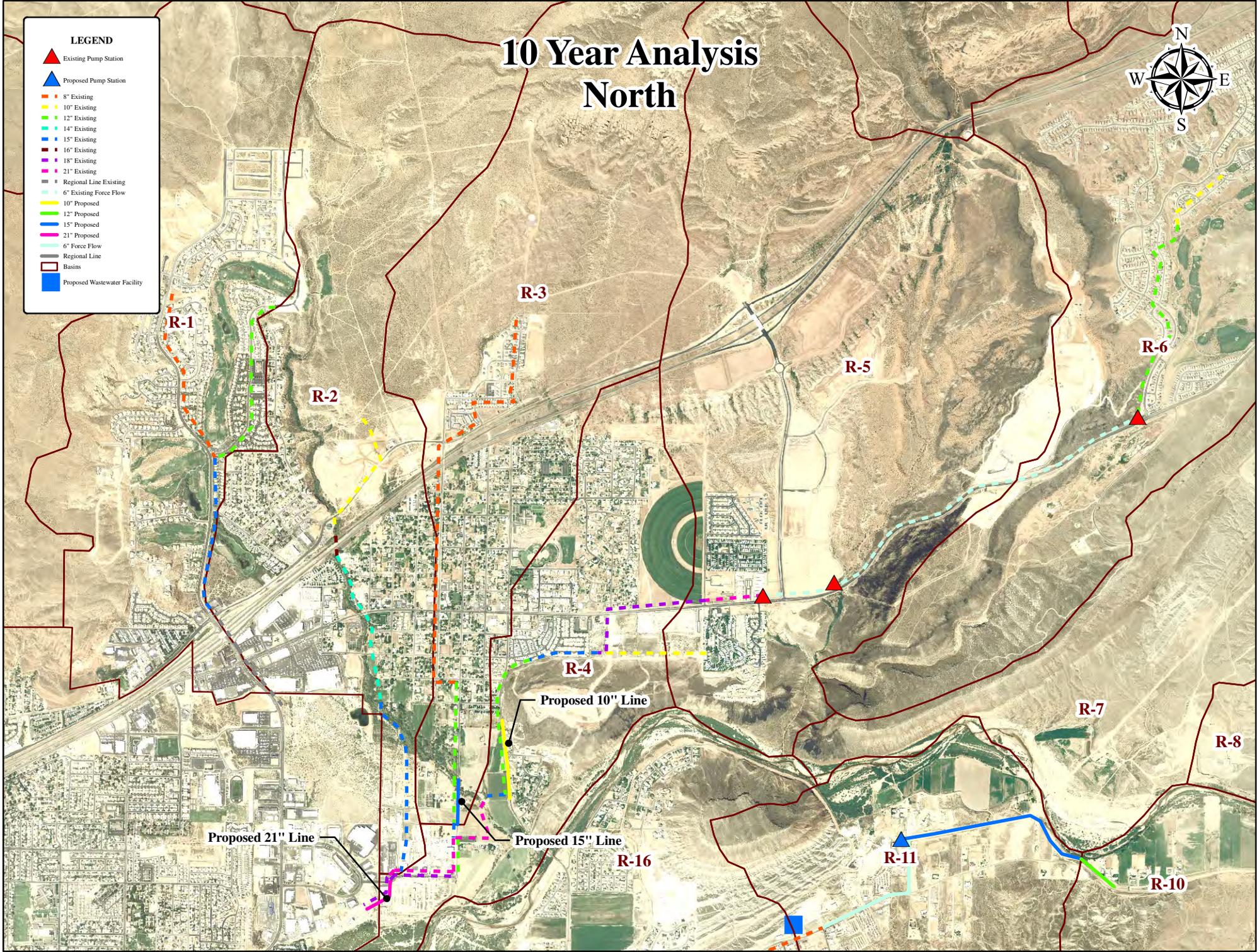


10 Year Analysis North



LEGEND

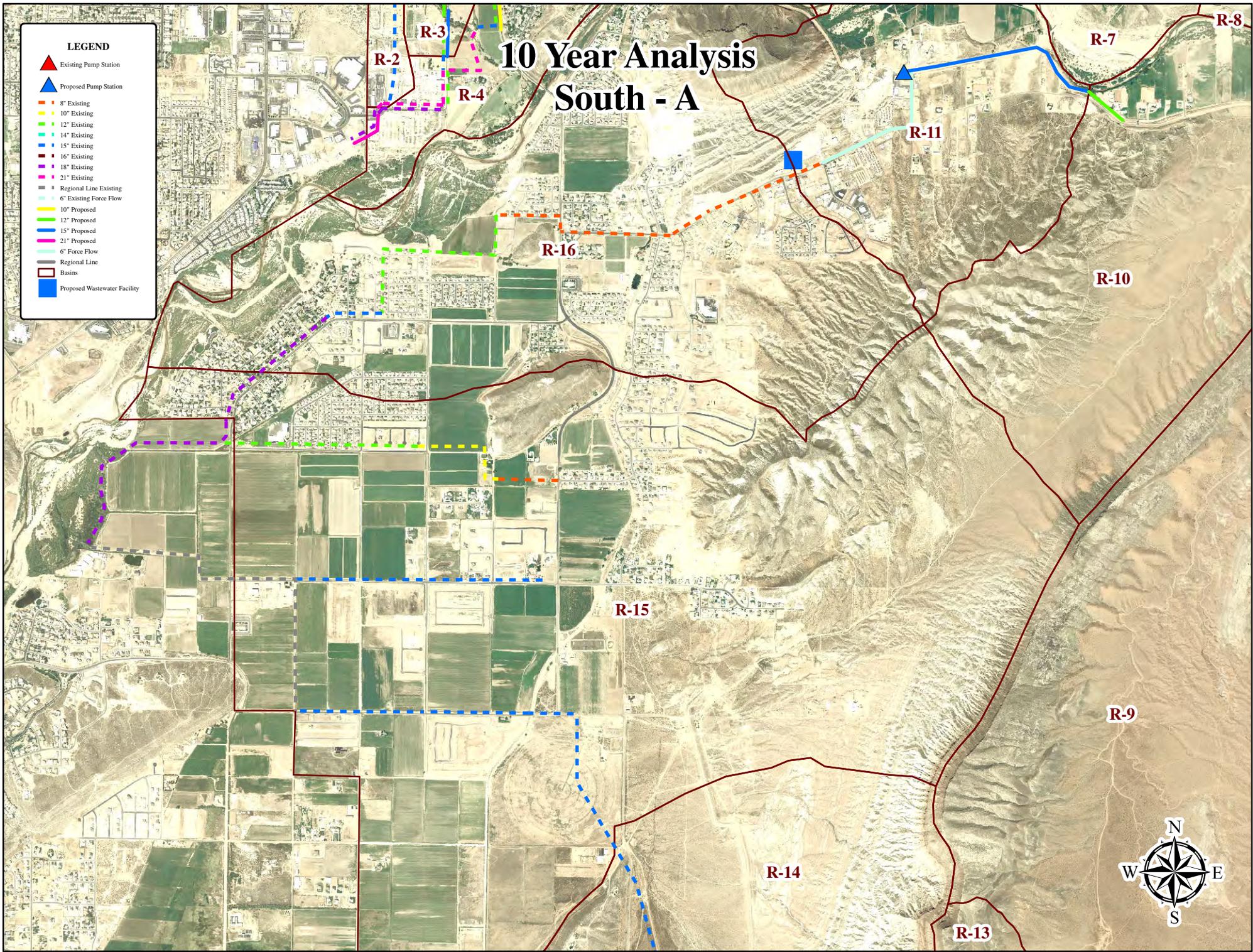
- Existing Pump Station
- Proposed Pump Station
- 8" Existing
- 10" Existing
- 12" Existing
- 14" Existing
- 15" Existing
- 16" Existing
- 18" Existing
- 21" Existing
- Regional Line Existing
- 6" Existing Force Flow
- 10" Proposed
- 12" Proposed
- 15" Proposed
- 21" Proposed
- 6" Force Flow
- Regional Line
- Basin
- Proposed Wastewater Facility



10 Year Analysis South - A

LEGEND

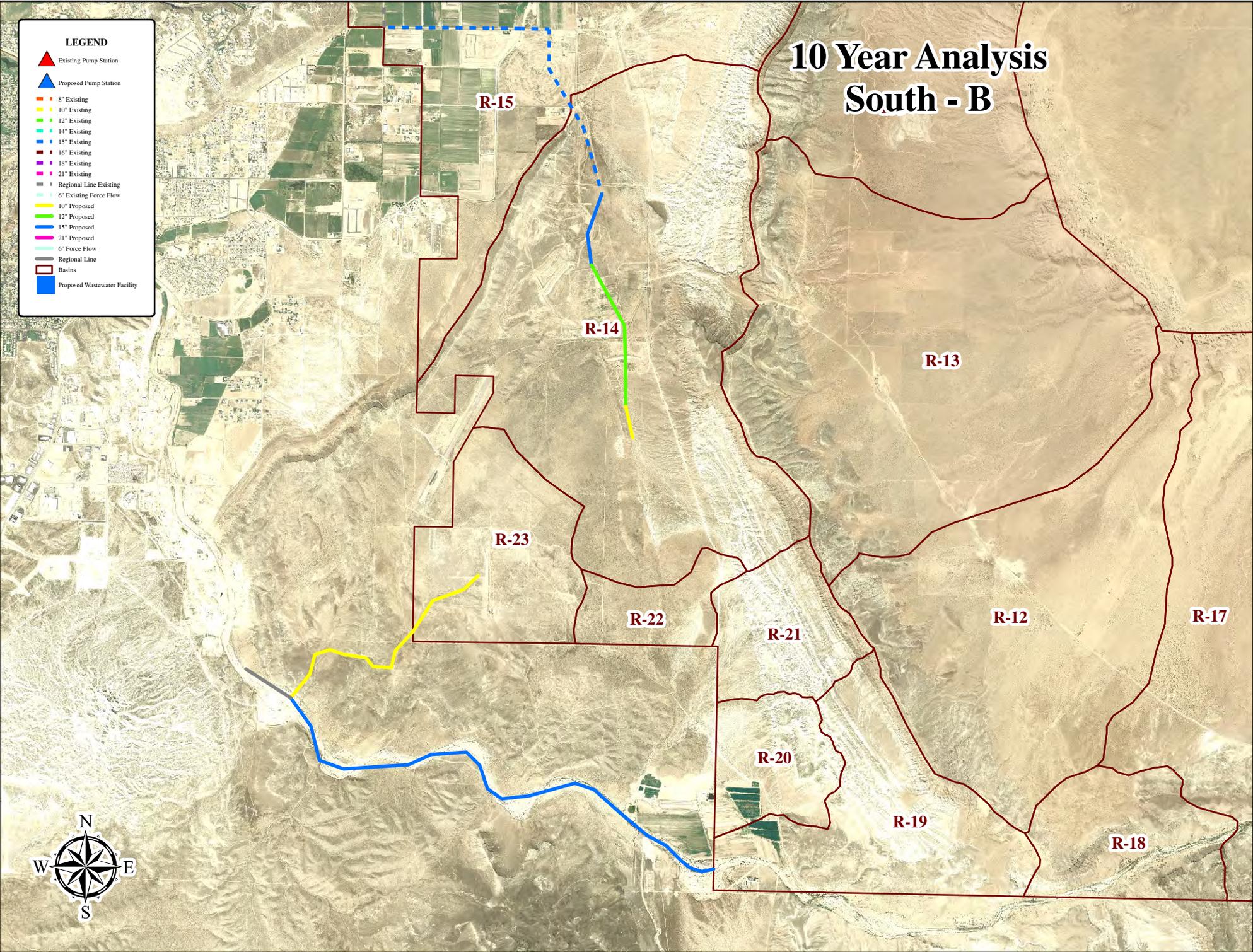
- Existing Pump Station
- Proposed Pump Station
- 8" Existing
- 10" Existing
- 12" Existing
- 14" Existing
- 15" Existing
- 16" Existing
- 18" Existing
- 21" Existing
- Regional Line Existing
- 6" Existing Force Flow
- 10" Proposed
- 12" Proposed
- 15" Proposed
- 21" Proposed
- 6" Force Flow
- Regional Line
- Basins
- Proposed Wastewater Facility



10 Year Analysis South - B

LEGEND

- Existing Pump Station
- Proposed Pump Station
- 8" Existing
- 10" Existing
- 12" Existing
- 14" Existing
- 15" Existing
- 16" Existing
- 18" Existing
- 21" Existing
- Regional Line Existing
- 6" Existing Force Flow
- 10" Proposed
- 12" Proposed
- 15" Proposed
- 21" Proposed
- 6" Force Flow
- Regional Line
- Basins
- Proposed Wastewater Facility

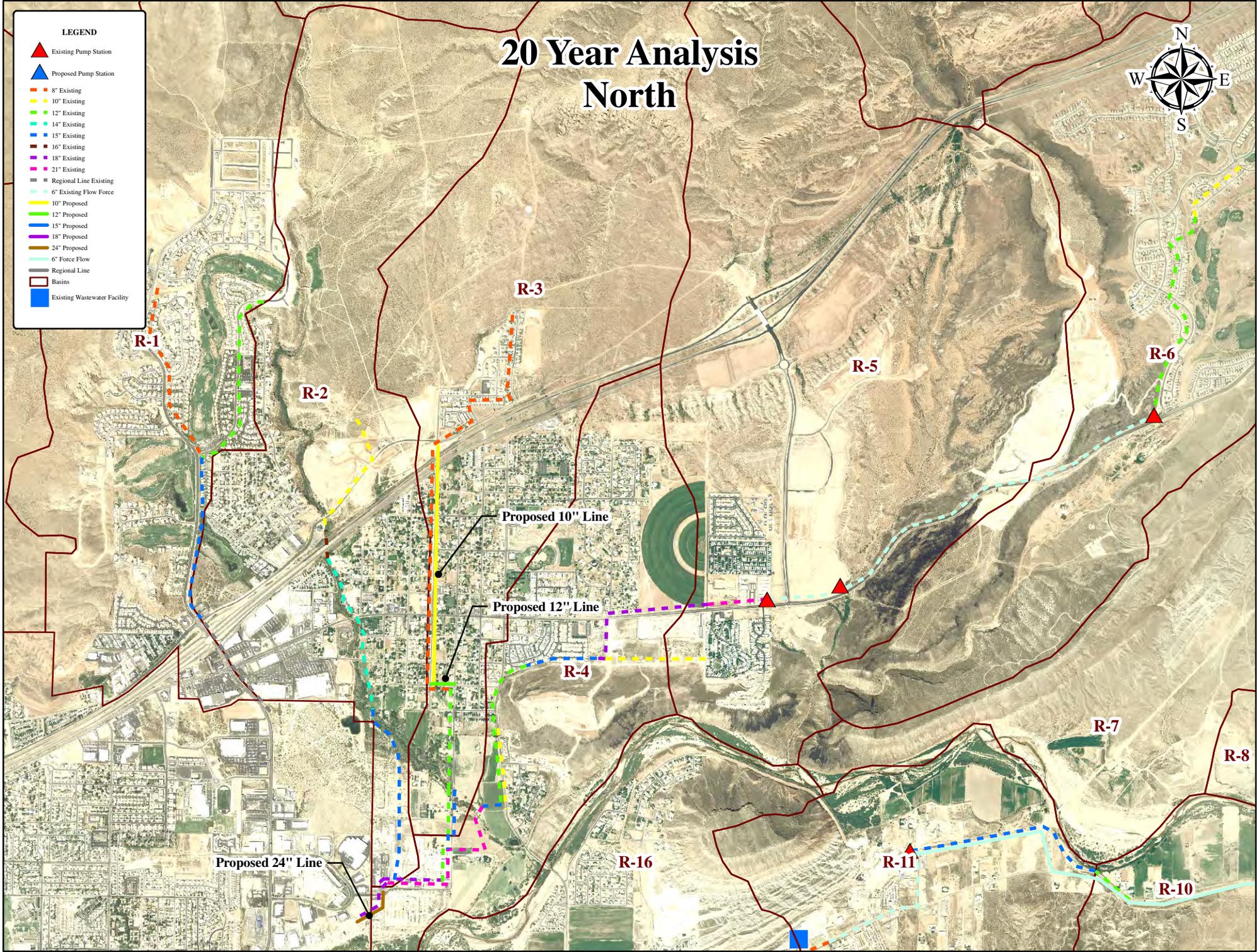


20 Year Analysis North



LEGEND

- Existing Pump Station (Red triangle)
- Proposed Pump Station (Blue triangle)
- 8" Existing (Orange dashed line)
- 10" Existing (Yellow dashed line)
- 12" Existing (Green dashed line)
- 14" Existing (Cyan dashed line)
- 15" Existing (Blue dashed line)
- 16" Existing (Purple dashed line)
- 18" Existing (Magenta dashed line)
- 21" Existing (Pink dashed line)
- Regional Line Existing (Grey solid line)
- 6" Existing Flow Force (Yellow solid line)
- 10" Proposed (Yellow solid line)
- 12" Proposed (Green solid line)
- 15" Proposed (Blue solid line)
- 18" Proposed (Purple solid line)
- 24" Proposed (Magenta solid line)
- 6" Force Flow (Cyan solid line)
- Regional Line (Grey solid line)
- Basins (Red outline)
- Existing Wastewater Facility (Blue rectangle)



R-1

R-2

R-3

R-5

R-6

Proposed 10" Line

Proposed 12" Line

R-4

R-7

R-8

Proposed 24" Line

R-16

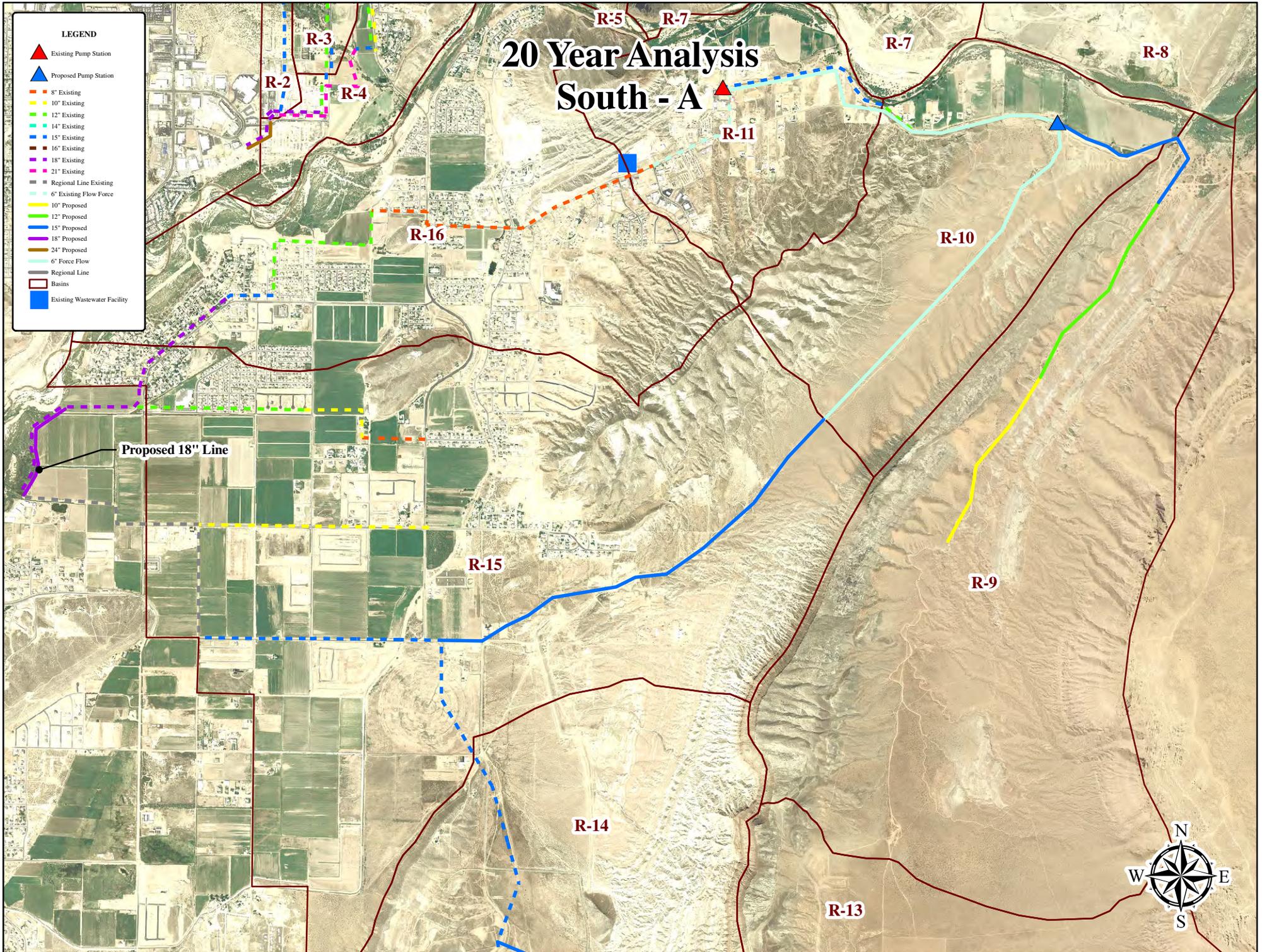
R-11

R-10

20 Year Analysis South - A

LEGEND

- ▲ Existing Pump Station
- ▲ Proposed Pump Station
- 8" Existing
- 10" Existing
- 12" Existing
- 14" Existing
- 15" Existing
- 16" Existing
- 18" Existing
- 21" Existing
- Regional Line Existing
- 6" Existing Flow Force
- 10" Proposed
- 12" Proposed
- 15" Proposed
- 18" Proposed
- 24" Proposed
- 6" Force Flow
- Regional Line
- Basins
- Existing Wastewater Facility

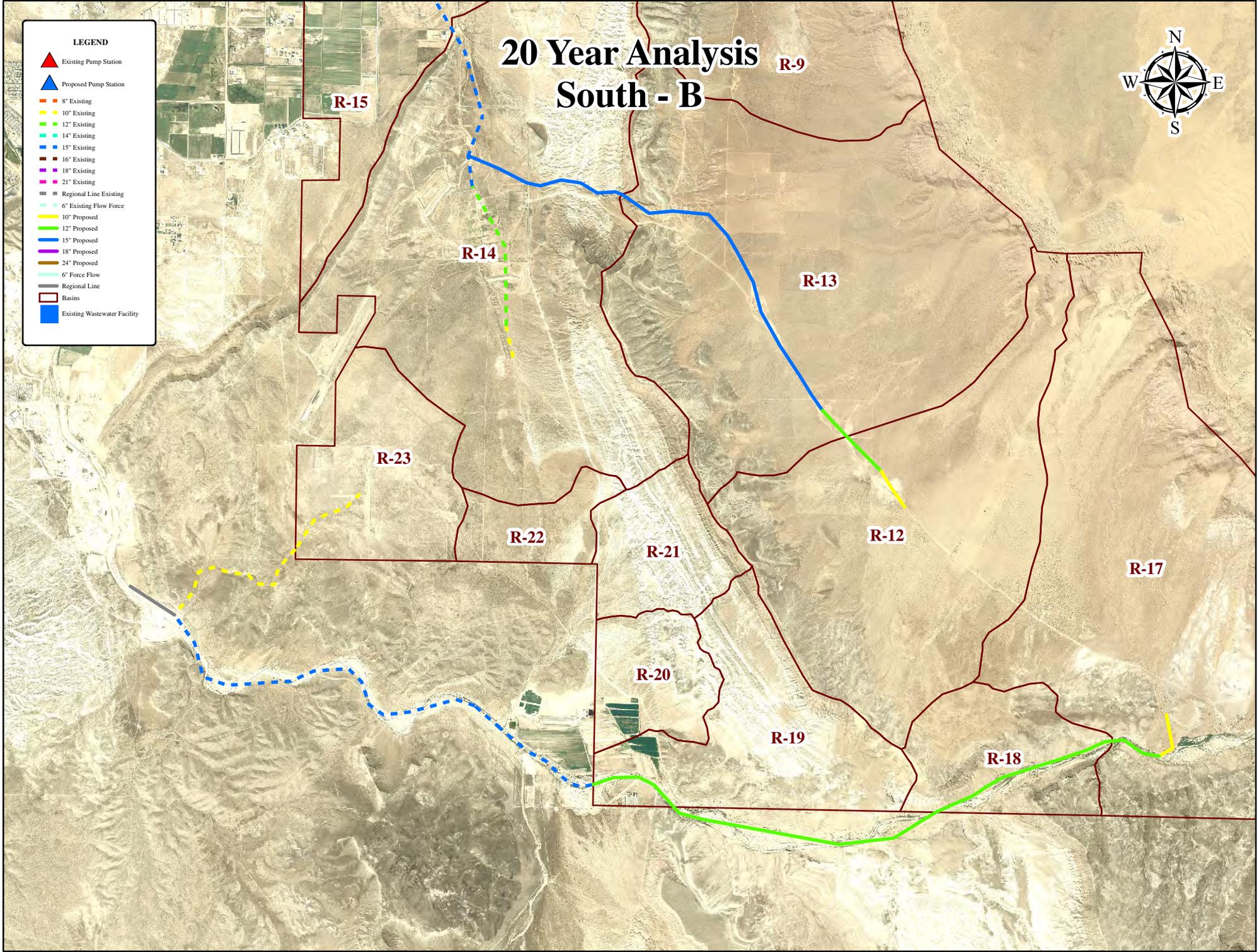


20 Year Analysis South - B



LEGEND

- Existing Pump Station
- Proposed Pump Station
- 8" Existing
- 10" Existing
- 12" Existing
- 14" Existing
- 15" Existing
- 16" Existing
- 18" Existing
- 21" Existing
- Regional Line Existing
- 6" Existing Flow Force
- 10" Proposed
- 12" Proposed
- 15" Proposed
- 18" Proposed
- 24" Proposed
- 6" Force Flow
- Regional Line
- Basins
- Existing Wastewater Facility



ENGINEER'S OPINION OF PROBABLE COST
10-YEAR PROJECTED ANALYSIS

Wastewater Master Plan Update
Washington City, Utah

21-May-09
JKP/cch

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
1	Mobilization	1	LS	8.0%	\$ 305,000.00
2	6-inch Pressurized Sewer Main (PVC C900 DR-18)	3,200	LF	\$ 17.00	\$ 54,400.00
3	8-inch Sewer Main (PVC SDR 35 ASTM D 3034)	45,580	LF	\$ 20.00	\$ 911,600.00
4	10-inch Sewer Main (PVC SDR 35 ASTM D 3034)	932	LF	\$ 22.00	\$ 20,500.00
5	21-inch Sewer Main (PVC SDR 35 ASTM D 3034)	893	LF	\$ 35.00	\$ 31,300.00
6	48-inch Reinforced Concrete Manhole	118	EA	\$ 2,500.00	\$ 295,000.00
7	60-inch Reinforced Concrete Manhole	4	EA	\$ 3,000.00	\$ 12,000.00
8	Imported Pipe Bedding	1,930	CY	\$ 15.00	\$ 29,000.00
9	Imported Trench Backfill	6,650	CY	\$ 10.00	\$ 66,500.00
10	Sewer Pump Station	1	LS	\$ 150,000.00	\$ 150,000.00
11	Wastewater Department Facility	1	LS	\$ 768,800.00	\$ 768,800.00
12	Master Planning	2	EA	\$ 30,000.00	\$ 60,000.00
13	Additional Standard Miscellaneous Items	1	LS	15.0%	\$ 227,400.00
14	Additional Items Due to Groundwater	1	LS	15.0%	\$ 394,000.00
15	Additional Items Due to Existing Pavement	1	LS	10.0%	\$ 302,100.00
16	Construction Contingency	1	LS	15.0%	\$ 544,100.00
Construction Total					\$ 4,171,700.00
1	Funding, Legal, & Fiscal Services	1	LS	3.5%	\$ 133,400.00
2	Property and Right-of-Way Survey	1	EA	3.5%	\$ 133,400.00
3	Engineering Design Services	1	LS	5.2%	\$ 271,200.00
4	Construction Administration & Inspection	1	LS	6.4%	\$ 333,700.00
5	Electrical Design Services	1	Est.	0.6%	\$ 30,000.00
6	Land Acquisition	2.00	AC	\$ 50,000.00	\$ 100,000.00
7	GIS Mapping	122	EA	\$ 50.00	\$ 6,100.00
Professional Services Total					\$ 1,007,800.00
TOTAL PROJECT COST					\$ 5,179,500.00

In providing opinions of probable construction cost, the Client understands that the Engineer has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinion of probable construction cost provided herein is made on the basis of the Engineer's qualifications and experience. The Engineer makes no warranty, expressed or implied, as to the accuracy of such opinions compared to bid or actual costs.