City of Plano

Capacity, Management, Operations and Maintenance (CMOM) Plan

Project No.: 22-336

City of Plano

17 East Main Street

Plano, Illinois 60545

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1 INTRODUCTION

1.1 City of Plano

The Water Reclamation Facility for the City of Plano (City) is located on the southeast side of town, next to Foli Park. The present facility was last expanded in 2006 at a capacity of 2.44 million gallons per day. The City's Water Reclamation Facility has a long history of providing excellent service to its 11,847 (2020 census) residential customers and various industries. In 1993, the facility was nominated for plant of the year by the Environmental Protection Agency. In 2003, the receiving stream - Big Rock Creek - had its rating elevated to a Class A stream by the Illinois Department of Natural Resources. This is the highest rating available. Several endangered aquatic species have begun to proliferate near the facility, lending to the high quality of treatment being provided by the City.

The facility includes biological nutrient removal and ultraviolet disinfection. These additions further improve the treated wastewater that leaves the plant, ensuring the City's commitment to protecting the environment and natural resources.

1.2 City of Plano's CMOM Program

Wastewater Treatment Plants (WWTP) that discharge into navigable waters are required by the United States Environmental Protection Agency (USEPA) to have a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES Permit for the City (Permit No. IL0020052) dated February 1, 2022, from the Illinois Environmental Protection Agency (IEPA) includes Special Condition 18 detailing the requirements for a Capacity, Management, Operations, and Maintenance (CMOM) plan (Appendix A). This CMOM has been prepared to provide a centralized document that can be used to manage, operate, and maintain the sanitary collection system owned and operated by the City more effectively and efficiently. It does not apply to the WWTP located on South Hale Street or any other portion of the collection system that is not owned by the City.

1.3 Capacity, Management, Operations, and Maintenance (CMOM) Plan Overview

Sanitary sewer collection systems have a finite capacity to carry wastewater based on the size of the system components. The size of the components is based on an analysis of the flows into the system plus a factor for growth. The analysis considers residential, commercial, and industrial sources plus a designated leakage rate for the system components. Over time, the design basis for the system can change resulting in flows exceeding the designed flow. Changes can include population increases, deterioration of pipes resulting in an increased leak rate, and illegal stormwater connections. These

factors can lead to overflows of the system as the increased flows exceed the ability of the collection system or lift stations to convey the wastewater.

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

Raw sewage in sanitary sewer overflows (SSOs) contains a variety of harmful pathogens that can sicken people, animals, and aquatic wildlife. SSOs discharging into surface waters can cause sickness or even prove lethal to both humans and aquatic wildlife. SSOs occurring over land may cause significant amounts of property damage as well as endanger animals and humans that encounter the sewage.

1.3.1 History of the CMOM Program

The Clean Water Act initiated the Separate Sanitary Sewer Overflow Policy, which resulted in the 1995 Urban Wet Weather Flows Advisory Committee. The 1995 Wet Weather Flows Advisory Committee followed up with a Phase II Stormwater Subcommittee and the SSO Policy Dialogue Subcommittee. In 1999, the SSO Subcommittee began working on regulations for separate sanitary collection systems which included CMOM regulations; the CMOM regulations then went through various phases of review, revision, and waiting periods. Even though there was a consensus that the CMOM plan was needed, there were concerns regarding separating it from the policy. In 2005 the USEPA published the Guidance document on CMOM and that initiated other USEPA regional offices to develop their own CMOM regulations. The IEPA started implementing CMOM regulations into NPDES permits in 2007.

1.3.2 Purpose of the CMOM Program

The goal of the CMOM plan is to manage, operate and maintain the sanitary collection system for the lowest practical customer cost and to protect public health.

This goal is supported by:

- Maintaining regulatory compliance.
- Establishing and re-evaluating the desired Level of Service (LOS).
- Investing in the proactive maintenance of all inventoried assets, thus reducing the overall cost for the lifecycle management of those assets.
- Assessing the performance of the collection system in terms of minimizing releases, ensuring that enough capacity exists and to improve, and when necessary, replace assets as determined to be needed.

As stated in the NPDES permit, the CMOM plan focuses on reducing or eliminating preventable SSO's. Specifically, this CMOM plan focuses on:

- Minimizing the effects of SSO's and basement back-ups.
- Investigating, repairing, and mitigating releases.
- Identifying the cause of the SSO or basement back-up, making necessary repairs, identifying operational improvements, and identifying structural issues within the system for potential upgrade or repair.

The City intends to implement and continuously improve a results-based and cost efficient CMOM program for its sanitary collection system that is driven by best management practices and coordinated with the overall strategy of wastewater treatment.

The City will continue to maintain the integrity of the sanitary sewer system and provide reliable and safe conveyance to the WWTP at the lowest practical cost to its customers.

1.3.3 Components of the CMOM Program

The NPDES Permit Special Condition that mandated creation of this CMOM plan outlined several items which must be included. The USEPA has also created multiple documents regarding recommended contents of CMOM plans. CMOM plans are applicable to all sizes of collection systems and no two CMOM plans will be identical. It is important to note that the CMOM plan itself makes no quantitative rules regarding the sewer system management; it is meant to be a guidance document that assists in efficient management of the sewer system.

2. EXISTING SEWER SYSTEM

Careful study and analysis of the existing sanitary sewer system will help to guide the City in making feasible and cost-effective decisions regarding the CMOM plan. The following section outlines key metrics and asset management items for the City's sanitary sewer system.

2.1 Sanitary Sewer System Metrics and Asset Management

The City owns and maintains 26.9 miles of gravity sewer main, 0.8 miles of force mains, three wastewater pumping stations, and two sanitary interceptors. Figure 2-1 shows the overall system. The two interceptors consist of the following:

- The West Relief Sewer. This 24-inch interceptor constructed in the early 1980's serves the western and northern part of the City. It has a capacity of 5.0 mgd in its downstream portion near the WWTP at a slope of 0.11% and a capacity of 3.2 mgd in the 21-inch pipe laid at a slope of 0.10% in its upstream portion by Church Street. The West Relief

Sewer was constructed in the mid 1980's to alleviate sewage backups from occurring into residential basements in the northern part of the City.

- East Interceptor. This 30-inch interceptor was constructed in the early 1990's to serve the Menard's regional warehouse complex and undeveloped lands on the far northeast side of the Facility Planning Area. It has a capacity of 10.0 mgd at an average slope of 0.15%.

The City's wastewater collection system is presently divided into seven wastewater drainage basins for manhole identification and evaluation of flow data. The location and boundaries of the basins are shown on Figure 2-2. Basins are identified by letters that delineate the primary interceptor sewer serving the area ("LR – Little Rock Interceptor", "WS – West Street Interceptor", "HS – Hale Street Interceptor" or "ES – East Side Interceptor").

The assets owned and maintained by the City are split into three main categories consisting of sanitary mains, lift stations, and emergency equipment. Section 2 will reference historic maintenance items and Section 3 will describe future maintenance items as suggested by the CMOM.

2.1.1 Sanitary Sewer Mains

The diameter of the sewer mains range in size from 8-inches to 36-inches, depending upon the type and location of the pipe. Sewer piping construction materials consists of vitrified clay pipe (VCP), polyvinyl chloride (PVC) pipe, ductile iron pipe (DIP), reinforced concrete pipe (RCP), segmented clay tile (SCT) or cast iron.

2.1.2 Pump Stations

The City has three lift stations to transfer the wastewater from lower elevations to higher elevations to continue the gravity flow of the wastewater to the WWTP.

2.1.3 Emergency Equipment

Bypass pumps may be used to bypass a lift station if the lift station is temporarily out of service for any reason. Bypass pumps can also be used to pump flow out of the sanitary sewer system at strategic locations when, in the case of a precipitation event, the sanitary sewer system is bottlenecked and is causing backups and/or overflows. In addition to bypass pumps, the City owns equipment such as generators, trucks, and trailers for sanitary sewer system cleaning.

2.2 Existing Sanitary System Evaluation

2.2.1 Sanitary Sewer Overflows

SSOs are typically linked to improperly designed sewers, blockages, or infiltration and inflow (I&I). If a community does see a recurring problem with SSOs, it is typically more cost effective to reduce I/I rather than complete costly sewer and WWTP up-sizing programs.

2.2.2 Infiltration and Inflow

When the integrity of a sewer system deteriorates, extraneous water from I&I sources enter the sewers. These flows reduce the capability of sewer systems and treatment facilities to transport and treat domestic and industrial wastewater. As a result, wastewater treatment processes are upset, and poorly treated wastewater is discharged to receiving waters. Significantly reducing I&I helps to relieve overburdened collection systems and treatment facilities, lowers capital costs associated with treatment plant expansions, reduces operation and maintenance costs, and prolongs the life of the collection systems and treatment facility.

I&I studies are typically performed as a result of one or more of the following reasons: (1) regulatory requirements to apply for Federal funding, (2) structural failure, (3) hydraulic failure, (4) citizens' complaints, (5) desire to enlarge service area and (6) financial planning. In the past, the construction of relief sewers, larger lift stations and treatment facilities, along with the use of wastewater overflows throughout the collection system were standard practices of the industry for managing I&I problems. This last approach (overflows), however, often results in untreated wastewater being discharged into rivers, streams, lakes, and open ditches.

The increase in flow caused by I&I can overwhelm the sanitary sewers and cause them to overflow into the streets, homes, or non-residential buildings. Flow analysis results from the March 2002 WWTP Engineering Report was used to reiterate the need of performing an I&I Study. A short duration, high intensity rainstorm occurred the early morning of August 31, 2001. During the storm 0.85 inches of rain was collected over a period of 42 minutes, followed by an additional 0.4 inches of rainfall two hours later. This storm was the equivalent to a 6-month storm recurrence, based on the Illinois State Water Survey Bulletin 70/89. A scale factor of 1.88 was applied to all measured inflows to scale the flows to a 5-year storm recurrence. Results of the 2002 flow monitoring indicate that none of the main sewers are lacking capacity. However, I&I entering the collection system is of concern, as it affects the capabilities of treating peak flows at the wastewater treatment plant.

In 2020 Duke's Rooted in Innovation conducted a precision I&I microdetection study to determine I&I areas within City limits (Appendix B). This study was conducted in two phases. Phase I consisted of placing iTrackers in key outfall areas from June through July. Phase II was conducted from the end of July through August. The study surveyed approximately 263,179 linear feet of pipe running through

1,108 manhole structures. Since there was no major rain event during Phase II of the study, the response from rain events that occurred during Phase I was analyzed. Rain events during Phase I caused surcharging which can be an indication of I&I. Several of the structures studied exhibited debris in the channel which impede system performance and cause increased levels. The main area of concern observed during the study was the pipe segments running north and south along south West Street and the pipe that tie into that line.

The effects of inflow on the operations of the WWTP are significant and should be investigated. To reduce the inflow, the City conducted a sewer investigation in 2006.

The 2006 study was conducted by Deuchler and consisted of three drainage basin areas (S1, N2 and N3). This project was completed during the summer of 2006 and the report is included in Appendix C. This investigation included:

- Smoke Testing – Smoke testing detects possible inflow in the sewer system. It consists of blowing smoke, under pressure, into a sewer section and observing the appearance of smoke at key locations such as: storm inlets, cross connections between storm and sanitary sewers, broken tiles, defective manholes, cracks in pavement, downspouts and window wells illegally connected to the sanitary services.
- Rainfall Simulation - An actual rain event is simulated by flooding isolated sections of storm sewers with water from the City's fire hydrants and coloring the water with a non-toxic, self-decaying dye. Simultaneously, the nearby sanitary sewers are visually inspected for evidence of dyed storm water entering the sanitary sewer system. This method duplicates the effects of storm sewer surcharge during rainstorm events and its consequences on the sanitary sewers.
- Manhole Inspection – Manhole inspection consists of a visual inspection from the ground surface to determine the physical condition and characteristics of each structure.
- Building Inspection Survey – A building inspection survey (door-to-door canvassing) locates and identifies those buildings with sump pumps that discharge storm water and/or groundwater directly to the sanitary sewer system. A visual inspection of the plumbing to and from each unit in the study area is also performed, as well as an inspection of outside downspouts.

- Sewer Televising – Sewer televising determines the physical condition and characteristics of the pipe network with the use of robotic closed circuit televising equipment.
- Analysis and Report – After completing the above investigative tasks, a comprehensive report of the condition of the sewer system in the study area would be developed. The report would contain a description of all the tasks performed, a summary of all the results gathered during the field investigation, a summary of proposed sewers and manholes to be rehabilitated, a tally of the probable construction costs for the rehabilitation of the sewer system and documentation of the field data gathered during the investigation.

3. ACTIVITIES OF THE CMOM

3.1 Goals of the CMOM Program

It is important when starting a new program, or maintaining an existing one, to set realistic goals and ensure they are clearly communicated to all those involved. The goals for the Plano CMOM plan are as follows:

1. Manage, operate, and maintain collection system to provide uninterrupted sanitary sewer service for all users in the service area.
2. Comply with all state and federal regulations pertaining to the sanitary sewer system, including NPDES Permit special condition(s) related to the CMOM plan.
3. Implement programs and procedures to reduce and mitigate the impact of sanitary backups and SSOs in the sanitary sewer system.
4. Provide timely notification of SSOs to all persons with reasonable potential for exposure to pollutants.
5. Ensure that new sewers are properly designed and installed.
6. Identification and prioritization of capacity and structural deficiencies in the sanitary sewer system, and implementation of cost-effective rehabilitation action on identified and prioritized structural or capacity deficiencies.
7. Receive, document, and respond to all user complaints or problems relating to the sanitary sewer system.
8. Develop a written summary of the CMOM plan and perform required program audits.

3.2 Legal Authority

The collection system owner should understand the legal authority it possesses to create or enforce ordinances that will confirm the system's compliance with pertinent regulatory requirements. Sewer use ordinances, pretreatment ordinances, regulatory codes, contracts, and service agreements are forms of legal documents that communities can utilize for this purpose. The legal authority typically extends to residential, commercial, and industrial customers.

3.2.1 City Code

The City has code regarding Sewers and Sewer Rates (Appendix D, E, and F). These codes can be found on the City's website under Title 7, Water and Sewer. Chapter 2 outlines Sewer Use and Service, Chapter 4 outlines Rates and Charges for use of Combined Waterworks and Sewerage System, and Chapter 6 describes Sewer User Charges. Chapters 2, 4, and 6. In these chapters of the Code, regulations are detailed regarding each sewer user's responsibility and the authority of the City to enforce the regulations. City Code specifies that the user is responsible for service connections from their building up to the point of the connection to the sewer main. The City is responsible for the connection and the main sewers. The City attorney is authorized to prosecute all proceedings, suits, and actions necessary to collect fines and penalties and is also empowered to institute suits as may be appropriate to prevent unlawful connections to the city wastewater treatment facilities.

3.2.2 Other Authorities

While the City Code governs in most cases, there are other authorities that the City can utilize to ensure compliance. The national pretreatment program (40 CFR 403.5) is used as the basis for enforcing all pretreatment issues. Also, the "Standard Specifications for Water and Sewer Construction in Illinois" (latest edition) and Illinois Plumbing Code (Joint Committee on Administrative Rules, Administrative Code, Title 77, Chapter I, Subchapter r, Part 890 – Illinois Plumbing Code) can be used to supplement the City Code.

3.3 Planned Operations and Maintenance (O&M) Activities

As stated previously, SSO events can be caused by poor design, a clogged sewer due to fats, oils, and grease (FOG), I&I from large precipitation events, or general overload of the system. Sewer blockages, collapsed or broken sewers, structural or mechanical failures, insufficient conveyance capacity, or vandalism may also be causes for SSOs. A clear plan and schedule for handling O&M of the sanitary sewers, lift stations, and other equipment can ultimately save time and money for the City. Therefore, it is vital that the City have an O&M and asset management plan outlined.

3.3.1 Prior O&M Activity

The smoke testing program was conducted by Deuchler in the study area shown in Figure 3-1. The work was performed between May 30, 2006, and July 5, 2006, during dry weather conditions. Approximately 84,096 feet of sewers were smoke tested.

Deuchler subcontracted the televising of the sanitary sewers to National Power Rodding Corporation, of Chicago, IL. Approximately 84,096 linear feet of sanitary sewers ranging in size from 6 to 21-inches in diameter were televised. A thorough review of the television tapes was performed by Deuchler to verify the conditions of the existing sanitary sewers and to estimate the amount of infiltration entering the sanitary sewer system. Closed circuit televising has proven to be a reliable source for determining the most suitable methods to rehabilitate defective sewer sections. Structural defects, sags, sources of I&I, service connections, abnormal conditions and any other pertinent observations were identified and reported in the attached television reports.

The sanitary manholes in the study area are numbered in accordance with the City Water and Sewer Department's numbering system. The purpose of the manhole inspection was to:

a) Determine the physical condition and characteristics of each structure.

b) Locate and estimate points of entry of I&I.

Pursuant to the smoke testing program, Deuchler personnel visually inspected each of the sanitary manholes from the ground surface to determine the physical condition and characteristics of each structure. The following information was recorded:

1. Manhole identification and location
2. Materials of construction
3. Condition of the frame and lid, chimney, walls, trough, and bench
4. Visible infiltration and location of leaks
5. Depth and configuration of the inlet and outlet pipes
6. Depth of manhole and chimney height
7. Potential ponding of storm water over manhole rim
8. Estimation of I&I rate in gpm

Ground surface inspection, unfortunately, does not reveal all defects and some additional work may be required during the rehabilitation process.

The purpose of the building inspection survey (door-to-door canvassing) was to locate and identify those buildings with sump pumps that discharge storm water and/or groundwater directly to the sanitary sewer system. Deuchler personnel performed a visual inspection of the plumbing to and from each unit

in the study area. Also, the residents were surveyed to obtain historical information concerning the following: sanitary sewer backups, surface water runoff problems such as basement or yard flooding, and seepage problems through basement walls and floors.

3.3.2 Planned Sanitary Sewers O&M

The City should continue to investigate the sewer system annually to determine areas in need of repair. Once those areas are identified, proper remediation will be implemented. A city-wide macro flow monitoring project scheduled for fiscal year 2022-2023 will provide the city with the information needed to properly scope areas for further investigation.

3.3.3 Planned Lift Stations O&M

Updates to the lift stations are made as needed based on the discretion of operations personnel. The City will continue the preventative maintenance program and make repairs on an as-needed basis to keep all lift stations in good working order.

3.3.4 Planned Emergency Equipment O&M

Regular and preventative maintenance can extend the life of equipment, so it is important to perform this maintenance as needed. The NPDES Permit special condition which details the CMOM requirements states that the City must document all preventative maintenance as well as any correlating schedules or checklists detailing or ensuring preventative maintenance. This would include preventative maintenance to bypass pumping equipment and other sewer maintenance equipment.

3.4 Emergency O&M Activities

While ideally all maintenance would be planned, the City will encounter unplanned activities and emergencies. These activities include lift station failure, sanitary sewer collapse, or SSOs due to a large rain event.

3.4.1 Notification and Correction of the Issue

It is important to have a system for logging an issue and evaluating complaints to find and track the cause of the issue. The procedure outlined below shows how an SSO or other complaint would be followed by City staff if reported by a property owner within Plano.

a) SSO identifier notifies City or Police Department

b) Water Department Superintendent is notified of the situation

c) Water Department Superintendent determines if SSO is City owned or within City service area

d) If SSO meets one of these requirements, Water Department Superintendent contacts two City Public Works employees to respond to the SSO.

e) Once City Employees are onsite, they will determine the location of the obstruction. Also, the Crew will determine if the blockage is in City or Private Property piping.

f) City Employees will jet City owned piping regardless of where blockage is located.

g) City Employees will communicate pertinent information to the Water Department Superintendent.

h) Water Department Superintendent will report incident to an administrative secretary for recording purposes.

i) Water Department Superintendent or Crew leader will follow up with affected property owners as needed.

3.4.2 Documentation

When an SSO occurs, the City will create a record of the event by using the IEPA Sanitary Sewer Overflow or Bypass Notification Summary Report (Appendix G) and track the information in ArcGIS. If SSOs occur at more than one location during a single precipitation event, an IEPA Summary Report and ArcGIS entry is completed for each location. The Summary Report and the ArcGIS files will be kept with the Water Superintendent for five years. Additionally, depending on the incident, the City may be required to communicate with third party entities.

3.5 Budgeting

The efficient and proper use of monetary funds is vital for the success of the CMOM. This section will review the historical O&M budget, as well as review the O&M budget for the upcoming years of the CMOM plan.

3.5.1 Historic O & M Activities Budget

A summary of the City's 2021/2022 sewer budget can be seen in Table 3-1.

3.5.2 Planned O & M Activities Budget

To maintain an effective O&M program, the City must have a planned budget. The future Capital Improvement Plan in the CMOM is from FY2023 until FY2032 (Table 3-2). Plano's Fiscal Year starts on May 1 and ends on April 30. The budget separates several major categories to determine where most of the costs may be going in any particular year. The budget is subject to annual board approval and therefore may fluctuate throughout the coming years.

3.6 Employees, Training, and Safety

A major contributor to upkeep the sanitary sewer system is the personnel that oversee and perform the maintenance on the system. It is vital that these employees are well trained in both the overall function and maintenance of the sanitary sewer system as well as job safety. Sanitary sewer systems contain

many potential hazards such as harmful gases and enclosed spaces; necessary training must be enforced to ensure the safety and well-being of the employees. Many different people on the Public Works staff work together to maintain a functioning sewer system and a safe environment for employees.

3.6.1 Managerial Staff

In the event of an emergency, such as an SSO, it may be required to contact managerial staff off-hours. The staff should be called beginning with the Water Superintendent. If additional personnel are needed, the order of contact should be the Streets Superintendent and the Treatment Plant Superintendent.

3.6.2 Employees

The City's organizational chart can be found in Appendix H.

3.6.3 Employee Training

Proper training is vital for the success of the CMOM, as well as for the best management of the Sanitary Sewer System. The list of employee trainings that have been completed for the City Personnel can be seen below.

- Confined Space
- Arc Flash
- Blood Borne Pathogens
- Ladder Safety
- Chemical Handling
- Gas detector training
- Proper Personal Protective Equipment (PPE) Use
- Trench and Excavation

3.7 Coordination with the Public

While the sanitary sewer system is used by virtually everyone in Plano, not many users spend time thinking about it. When an issue, such as an SSO or malodorous smell occurs, it is vital that the individual with the concern can reach the right personnel in a reasonable amount of time. Additionally, it is necessary for the City to have communication guidelines in place for when rehabilitation activities or other nonemergency activities will affect the people of Plano.

3.7.1 Public Initiated Communication

In the case of an SSO or another sewer emergency, the public can reach the City by calling the City Hall at 630-552-8275 Monday through Friday from 8:00 am to 5:00 pm. If an emergency occurs outside of those hours, the public should call 911.

3.7.2 Notice Plans regarding SSOs and Other Non-Compliance

When an SSO or non-compliance occurs, the City must notify various third-party entities as well as the people of Plano of any issues. The City may choose to do the following to communicate issues to residents:

- Post sign(s) where appropriate at the site of a release event immediately upon discovery and confirmation of such an event and leave them up for up to one (1) week after the source of the release has been corrected to warn affected parties of potential health hazards associated with the SSO.
- Post Overflow Incident Report on City website so that it is available to the public.
- Use reverse 911 to alert those affected.

3.7.3 Notice Plans Regarding Planned Maintenance

To avoid undue stress on the residents of Plano, the City will communicate any information about construction and maintenance projects by posting notices in the local paper and leaving door hangers on the residences that will be affected.

3.8 Third Party Notice Plans

The NPDES permit which required the CMOM stated that the City must have a third-party notice plan. Of course, different scenarios call for different third-party notice plans.

3.8.1 Notice Plans following SSOs or Other Non-Compliances

When an SSO occurs, Public Works staff should be contacted in the order seen in section 3.6.1. If the first person cannot be reached, the public works staff should continue to the next person. It is the responsibility of the Superintendent, or other supervisory staff, to contact the external agencies listed in this section.

IEPA, Des Plaines Regional Office

When an SSO occurs, the City must alert the Illinois Environmental Protection Agency (IEPA) Des Plaines Regional Office. A phone call, fax, email, or voicemail must be made within 24 hours of the SSO. The number that the Des Plaines Regional Office can be reached at is 847-294-4000. This office can be called anytime, if EPA staff is not available, the City staff must leave a detailed voice mail with the date and time of the SSO occurrence and the date and time of the call. Additionally, a form documenting the SSO must be completed by the Utilities Superintendent and sent to the IEPA within five days of the SSO. This form can be found in Appendix F. This reporting procedure must be followed for each incident location and for each event.

3.8.2 Notice Plans for Non-Emergency Events

In Illinois, the NPDES permit, and therefore the CMOM, is regulated by the IEPA. Depending on the circumstances and as applicable laws and procedures govern, the City may be required to report non-emergency events, such as planned rehabilitations, to other entities, such as the Army Corps of Engineers, Illinois Pollution Control Board, or Illinois Emergency Management Agency.

4. UPDATING AND AUDITING THE CMOM

There are two different types of maintenance mandated by the CMOM to ensure that the collection system continues to function effectively and efficiently. Updating the CMOM involves updating tables holding metrics or performance data. Auditing the CMOM involves reviewing the CMOM to ensure all sections and information are still relevant and may involve adding or removing entire sections of the document. Updating CMOM metrics can be done by anyone who has a thorough knowledge of the City's collection system. Auditing the CMOM should be completed only by those who have a strong background in CMOM activity and a comprehensive knowledge of the City's collection system.

4.1 Updating the CMOM

It is mandated, based on the regulations set forth by the NPDES permit, that Plano monitors the effectiveness of the CMOM Program. This requires the City to periodically evaluate the system to see if their number of complaints, time of response for each complaint, time to resolve complaints, maintenance activities, SSOs, I/I, etc. have followed a desirable trend. It is suggested to perform this evaluation annually. Some of the tables and figures within the CMOM are meant to be updated each year to observe trends and document changes to the system. Such changes could include adding new mains or Lift Stations, along with the lining or televising of mains. The updating of these tables and figures allows the CMOM to work as a living document that can be referenced by City Staff to ensure that the collection system and its components remain in good shape.

4.2 Auditing the CMOM

Auditing the CMOM must be completed to ensure the CMOM is still relevant and may involve adding, editing, or removing sections of the plan. For example, if the City were to begin to experience more I/I and begin to have more SSOs, they may wish to add a section to the CMOM outlining their rehabilitation efforts in detail.

Table 4-1 is a suggested table for tracking the CMOM audits as well as any changes that have occurred because of an audit. Tracking any changes made to the CMOM ensures that historical documents will be able to be useful in the future.

Tables

BUDGET REPORT FOR CITY OF PLANO, IL

GL NUMBER	DESCRIPTION	2020-21 ACTIVITY	2021-22 ACTIVITY	2022-23 AMENDED BUDGET	2022-23 ACTIVITY THRU 2/13/2023	2022-23 PROJECTED ACTIVITY	2023-24 REQUESTED BUDGET	NOTES:
Fund 25 - SEWER FUND								
ESTIMATED REVENUES								
Dept 000 - ASSETS, LIA, CAPTL & REVENUES								
LICENSES & PERMITS								
25-000-41-4165	DISCHARGE PERMIT					0	0	
LICENSES & PERMITS		0	0	0	0	0	0	
CHARGES FOR SERVICE								
25-000-42-4215	CONNECTION FEES	39,000	6,000	9,000	12,000	12,000	15,000	
25-000-42-4235	IMPACT FEES/SEWER	20,504	22,368	12,116	5,825	6,990	3,495	Lakewood Springs Club 15 @ $233/unit
25-000-42-4240	INFRASTRUCTURE FEES					0	0	
25-000-42-4260	USER FEE	1,561,071	1,558,002	1,500,000	1,331,631	1,597,957	1,600,000	
25-000-42-4265	DISCHARGE FEE	76,572	78,084	95,000	76,384	85,980	95,000	
25-000-42-4275	NEW DEVELOPMENT- METERS	19,575	21,150	11,250	5,175	6,300	3,375	Lakewood Springs Club 15 @ $225/unit
25-000-42-4280	RECAP FEES/SEWER	3,790		271	271	271	0	
CHARGES FOR SERVICE		1,720,512	1,685,604	1,627,637	1,431,285	1,709,498	1,716,870	
FINES & FORFEITS								
25-000-43-4370	PENALTIES	38,333	47,039	45,000	41,885	50,262	52,000	
FINES & FORFEITS		38,333	47,039	45,000	41,885	50,262	52,000	
MISCELLANEOUS								
25-000-44-4400	MISCELLANEOUS INCOME	27,588				0	0	
25-000-44-4440	SALE OF EQUIPMENT/VEHICLES					0	0	
MISCELLANEOUS		27,588	0	0	0	0	0	
INTERGOVERNMENTAL								
25-000-45-4500	GRANTS	29,953	1,508	1,729	1,729	1,729	26,000	IPRF Safety Grant, ComEd Energy Efficiency Grant
25-000-45-4502	AMERICAN RESCUE PLAN ACT (ARPA)		396,857	396,857	396,857	396,857	0	Received both installments of the ARPA Grant Expense in GL 28-542-75-7618 & 7619
INTERGOVERNMENTAL		29,953	398,365	398,586	398,586	398,586	26,000	
INTEREST								
25-000-46-4600	INTEREST INCOME	433	544	4,000	10,202	12,242	12,000	
25-000-46-4610	UNREALIZED GAINS/LOSSES					0	0	
INTEREST		433	544	4,000	10,202	12,242	12,000	
CONTRIBUTIONS								
25-000-47-4701	CONTRIBUTIONS-OTHER					0	0	
CONTRIBUTIONS		0	0	0	0	0	0	
OTHER OPERATING RECEIPTS								
25-000-48-4810	LOAN PROCEEDS					0	0	
OTHER OPERATING RECEIPTS		0	0	0	0	0	0	
TRANSFERS IN								
25-000-49-4801	CAPITAL ASSET TRSFR FROM GF							
25-000-49-4901	TRANSFER FROM GENERAL FUND							
TRANSFERS IN		0	0	0	0	0	0	
Totals for dept 000 - ASSETS, LIA, CAPTL & REVENUES		1,816,820	2,131,551	2,075,222	1,881,958	2,170,588	1,806,870	
TOTAL ESTIMATED REVENUES		1,816,820	2,131,551	2,075,222	1,881,958	2,170,588	1,806,870	
APPROPRIATIONS								
Dept 100 - ADMINISTRATION								
PERSONNEL SERVICES								
25-100-50-5111	WAGES-ADMINISTRATOR	36,314		35,000		0	50,000	New Hire (Split with GF 34%, Swr 33%, Wtr 33%)
25-100-50-5112	WAGES-DEPT HEAD/CLERK/COLL	24,564	26,667	27,000	21,902	27,000	28,620	

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25-100-50-5113	WAGES-DEPT HEAD/TREAS/BDGT	13,748	14,061	15,000	11,906	15,000	15,900	
25-100-50-5116	WAGES-DEPT HEAD/WWTP	55,612	59,034				0	Restructured wage allocations
25-100-50-5130	WAGES-LEVEL I	13,068	13,458	14,800	11,723	14,800	15,688	
25-100-50-5140	WAGES-LEVEL II	31,285	34,282	40,000	28,821	40,000	42,400	
25-100-50-5150	WAGES-LEVEL III	23,349	24,861	26,700	21,584	26,700	28,302	
PERSONNEL SERVICES		197,940	172,361	158,500	95,935	123,500	180,910	
PROFESSIONAL SERVICES								
25-100-61-7610	LEGAL SERVICES	252				0	0	
25-100-61-7634	CONSULTING SERVICES	111,599	24,835	25,000	16,411	22,000	15,000	1095's & Misc Consulting Services
25-100-61-7750	AUDIT EXPENSE	4,570	4,383	4,529	4,529	4,529	4,934	AUDIT 18%
PROFESSIONAL SERVICES		116,421	29,218	29,529	20,939	26,529	19,934	
CONTRACTUAL SVC & EXP								
25-100-62-7656	MTNC SRVC & RPR-COMPUTER SOFWR	1,815	1,771	2,000	3,511	3,511	3,650	Elemech Portalogic Software Support & BS&A MAINT AGREEMENT (INCR 3% PER YEAR)
25-100-62-7657	GIS HOSTING & SUPPORT FEE	21,000	12,208	10,000		2,334	10,000	GIS Build and Hosting (split 1/3 ea. with GF, SWR, WTR)
25-100-62-7666	MTNC SRVC & RPR-OFFICE EQMT	2,294	3,374	3,410	2,544	3,400	3,400	AID Contract; Konica Minolta Copier
25-100-62-7741	BANKING POSITIVE PAY FEE		95	270	202	270	270	Positive Pay Verification cost for Vendor Checks
25-100-62-7742	CREDIT CARD PROCESSING FEE	10,519	8,286			0	0	Passed fees to Consumer effective 12/22/2021
25-100-62-7743	PAYROLL PROCESSING FEE-4%	331	339	500	256	500	500	(GF=88%, PRKS=2%, SWR=4%, WTR=6%)
25-100-62-7753	METER READ SERVICE		5,844	7,946	7,946	7,946	12,000	Water Resources system annual hosting fee (split with water)
25-100-62-7788	DOUBTFUL EXPENSE ALLOWANCE	4,243		2,500		2,500	2,500	WRITE OFFS
CONTRACTUAL SVC & EXP		40,202	31,918	26,626	14,458	20,461	32,320	
COMMUNICATION								
25-100-63-7733	ADVERTISING, BIDS, PUBLICATION		287	500		500	500	
25-100-63-7734	POSTAGE & FREIGHT	3,113	3,431	3,500	3,066	4,050	4,050	
25-100-63-7735	TELEPHONE EXPENSE-LAND LINES	2,107	2,443	2,500	2,001	2,500	500	Dropped Land Lines at Lift Stations
25-100-63-7736	TELEPHONE EXPENSE-CELLULAR	1,062	1,058	1,500	945	1,200	1,200	
25-100-63-7738	INTERNET	2,936	3,119	2,500	1,756	2,500	2,500	
25-100-63-7739	WEB SITE	1,672	1,714	1,756	1,756	1,756	1,810	WEBSITE (GF 34%, SWR 33%, & WTR 33%)
25-100-63-7741	JULIE FACSIMILE	1,703	1,626	1,700	795	795	1,000	1/3 Annual JULIE cost (GF 33%, SWR 33%, & WTR 34%)
COMMUNICATION		12,592	13,676	13,956	10,320	13,301	11,560	
PROFESSIONAL DEVELOPMENT								
25-100-64-5810	SEMINARS, COURSES & CONFERENCES	345	588	5,000	875	3,000	5,000	AWWA, FVOA, IWEA, & WWTP CLASSES
25-100-64-5820	DUES & SUBCRIPTIONS	1,143	2,775	4,000	972	4,000	4,000	Illinois Rural Water Assn, Fox Valley Operators Assn, Fox River Study Group, Water Environment, AWWA, Logmein
25-100-64-5830	TRAVEL, FOOD & LODGING			500		150	500	Covers all Food, Lodging & Travel: AWWA, FVOA, IWEA, & WWTP CLASSES
25-100-64-5840	TUITION, BOOK & FEES							
PROFESSIONAL DEVELOPMENT		1,488	3,363	9,500	1,847	7,150	9,500	
OPERATIONS (0-4999)								
25-100-65-7311	NEW OFFICE EQUIPMENT					0	0	
25-100-65-7353	OFFICE SUPPLIES	2,810	2,346	3,000	2,065	3,000	3,000	1/3 of Cost Water/Sewer/Trash Billing Forms & Misc
OPERATIONS (0-4999)		2,810	2,346	3,000	2,065	3,000	3,000	
Totals for dept 100 - ADMINISTRATION		371,453	252,882	241,111	145,564	193,941	257,224	
Dept 110 - RETIREMENT								
RETIREMENT								
25-110-72-5820	PENSION EXPENSE-OPEB					0	0	
25-110-72-5821	PENSION EXPENSE-IMRF					0	0	
RETIREMENT		0	0	0	0	0	0	
Totals for dept 110 - RETIREMENT		0	0	0	0	0	0	
Dept 190 - INSURANCE								

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PERSONNEL SERVICES								
								GF 79%, SWR 12%, WTR 9% of Total
25-190-50-5880	BENEFITS-WORKERS COMP	12,127	12,912	14,203	13,608	13,608	14,288	ESTIMATE INCREASE OF 5%
25-190-50-5881	BENEFITS-UNEMPLOYMENT	744	693	800	615	750	750	Most of expense is received after January
								Health, Dental, Vision, & Life
25-190-50-5883	EMPLOYEES' INSURANCE	127,790	120,782	125,000	104,392	125,000	130,625	(GF 78%, PRKS 1%, SWR 12%, WTR 9%)
PERSONNEL SERVICES		140,662	134,386	140,003	118,615	139,358	145,663	
CONTRACTUAL SVC & EXP								
25-190-62-7760	AUTO,GENLIA,CONT,INLMARINE INS	48,898	51,516	56,667	52,346	57,068	59,922	ESTIMATE INCREASE OF 5%
CONTRACTUAL SVC & EXP		48,898	51,516	56,667	52,346	57,068	59,922	
Totals for dept 190 - INSURANCE		189,559	185,902	196,670	170,961	196,426	205,585	
Dept 531 - TURBO BLOWER								
CAPITAL OUTLAY (5000+)								
25-531-75-7618	ENGINEERNG						0	
25-531-75-7619	CONSTRUCTION						275,000	Construction / Integration
CAPITAL OUTLAY (5000+)		0	0	0	0	0	275,000	
Totals for dept 531 - TURBO BLOWER		0	0	0	0	0	275,000	
Dept 542 - AMERICA RESCUE PLAN ACT								
PROFESSIONAL SERVICES								
25-542-61-7618	ARPA ENGINEERING						0	
								ARPA Grant (American Rescue Plan Act of 2021)
								See Revenue GL 25-000-45-4502
25-542-61-7619	ARPA CONSTRUCTION			793,714		0	793,714	Received 2 installments-1st in FY'22 and 2nd in FY'23
PROFESSIONAL SERVICES		0	0	793,714	0	0	793,714	
Totals for dept 542 - AMERICA RESCUE PLAN ACT		0	0	793,714	0	0	793,714	
Dept 543 - AERATION SELECTOR TANKS								
PROFESSIONAL SERVICES								
								Selector replacement of mixers and ancilliary items
25-543-61-7618	SELECTOR MIXERS ENG		31,783	93,500	28,176	48,176	45,324	(Task Order 5)
25-543-61-7619	SELECTOR MIXERS CONST			55,000	21,320	58,660	795,175	Eqt & Install
PROFESSIONAL SERVICES		0	31,783	148,500	49,496	106,836	840,499	
Totals for dept 543 - AERATION SELECTOR TANKS		0	31,783	148,500	49,496	106,836	840,499	
Dept 545 - LIFT STNS VALVE VAULT MOD								
PROFESSIONAL SERVICES								
25-545-61-7618	LIFT STNS VALVE VAULT MOD ENGR					0	0	Valve Vault Replacement at the Foli and Klatt lift stations
25-545-61-7619	LIFT STNS VALVE VAULT MOD CONSTR					0	100,000	Eqt & Install
PROFESSIONAL SERVICES		0	0	0	0	0	100,000	
Totals for dept 545 - LIFT STNS VALVE VAULT MOD		0	0	0	0	0	100,000	
Dept 700 - WASTE WATER TREATMENT PLANT								
PERSONNEL SERVICES								
25-700-50-5116	WAGES-DEPT HEAD/WWTP	55,697	59,708	118,400	91,860	118,400	125,504	
25-700-50-5140	WAGES-LEVEL II	60,246	46,271			0	0	Restructured wage allocations
25-700-50-5160	WAGES-LEVEL IV	47,574	51,489	56,000	45,191	56,000	59,360	
25-700-50-5170	WAGES-LEVEL V	37,026	79,611	107,000	86,460	107,000	113,420	
PERSONNEL SERVICES		200,543	237,080	281,400	223,511	281,400	298,284	
PROFESSIONAL SERVICES								
25-700-61-7618	ENGINEERING	1,018				0	0	
								SCADA Tech Support/Service Agreement
								SCADA Computer Upgrade/Replacement
25-700-61-7630	PROFESSIONAL SERVICES	14,055	14,389	20,000	2,356	10,000	20,000	CMOM

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25-700-61-7634	CONSULTING SERVICES					0	0	
PROFESSIONAL SERVICES		15,072	14,389	20,000	2,356	10,000	20,000	
CONTRACTUAL SVC & EXP								
25-700-62-5630	UNIFORM/PRNL PROTECTION EQMT	8,078	7,426	9,000	7,066	9,000	9,000	
25-700-62-7660	MTNC SRVC & RPR-BUILDINGS	8,877	6,824	7,000	8,080	8,080	23,000	Pest Control, Alarm Detection, Blower building roof
25-700-62-7662	MNTC & RESTORATION-GROUND	32,939	27,541	18,000	10,502	15,000	32,000	Landscpng Mntc, Groot Roll Offs, Concrete Pad
25-700-62-7664	MTNC SRVC & RPR-OPERATING EQMT	95,774	43,586	70,000	45,550	65,000	100,000	Generator Maint, Pump, HACH Maint contract , Blower Maint, Lab Certification, Meter Calibration, Flight 10 Pumps Maint, RAS VFD Replacement, ROTO-TORK Valve Actuators, Centrifuge Walk-Thru
25-700-62-7668	MTNC SRVC & RPR-VEHICLES	235	250	2,500	1,475	2,500	2,500	All Trucks, Annual Inspections, Undercarriages
25-700-62-7670	DISPOSAL SERVICE-SLUDGE	34,856	37,336	42,000	43,126	43,126	45,000	CONTRACT INCL CLASS B SLUDGE
25-700-62-7671	TESTING SERVICES	4,574	5,178	7,000	4,654	6,000	4,500	Bio Solid Testing (EPA Required), New MPDS EPA
25-700-62-7720	RENTAL EXPENSE	284	648	1,500	280	500	500	CYLINDER & MISC RENTALS
25-700-62-7730	GAS (HEAT & OPERATIONS)	6,433	10,485	11,000	5,898	11,000	11,000	Most of expense is received after January
25-700-62-7731	ELECTRICITY	113,063	120,620	120,000	69,478	100,000	100,000	Heat cost increase
25-700-62-7799	EPA FEES	17,500	17,500	17,500	17,500	17,500	17,500	SLUDGE PERMIT
CONTRACTUAL SVC & EXP		322,614	277,396	305,500	213,609	277,706	345,000	
OPERATIONS (0-4999)								
25-700-65-7310	NEW OPERATING EQUIPMENT	49,018	54,621	65,300	43,372	50,000	15,000	Thermo-Mass Meter Replacement
25-700-65-7316	MTNC & RPR-SUPPLIES	14,843	11,988	15,000	13,733	15,000	15,000	
25-700-65-7318	MTNC SRVC & RPR-VEHICLES	2,209	218	2,000	90	500	500	In House Repairs to Vehicles
25-700-65-7333	GASOLINE, OIL & FILTERS	4,500	6,612	10,000	8,020	10,000	10,000	
25-700-65-7343	OPERATION SUPPLIES	57,272	57,038	85,000	88,982	105,000	105,000	Chemicals, Struvite removal, Polimers, & Hydrochloride
25-700-65-7399	MISCELLANEOUS SUPPLIES	748				0	0	
25-700-65-7899	MISCELLANEOUS EXPENSE					0	0	
25-700-65-7998	Loss on Disposal of Equipment					0	0	
25-700-65-7999	CONTINGENCIES	51,536	35,730	50,000	40,491	40,491	50,000	
OPERATIONS (0-4999)		180,125	166,208	227,300	194,689	220,991	195,500	
CAPITAL OUTLAY (5000+)								
25-700-75-6312	NEW VEHICLES			50,190	50,859	50,859	0	
25-700-75-7310	NEW OPERATING EQUIPMENT	16,471	47,528	47,528	47,528	47,528	47,528	Vac Truck Shared with Water (1/2 of $450,000 = $225,000) Payment 3 of 5 $47,527.72 Due in 2023 (FY'24) Payment 4 of 5 $47,527.72 Due in 2024 (FY'25) Final Payment 5 of 5 $47,527.72 Due in 2025 (FY'26)
CAPITAL OUTLAY (5000+)		16,471	47,528	97,718	98,387	98,387	47,528	
Totals for dept 700 - WASTE WATER TREATMENT PLANT		734,824	742,600	931,918	732,552	888,484	906,312	
Dept 710 - SWR LINE OPERATIONS								
PERSONNEL SERVICES								
25-710-50-5120	WAGES-SUPERVISOR	4,612	4,811	15,100	11,775	15,100	16,006	Restructured wage allocations
25-710-50-5140	WAGES-LEVEL II	5,547	2,473			0	0	
25-710-50-5150	WAGES-LEVEL III	21,674	27,110	20,000	15,275	20,000	21,200	
PERSONNEL SERVICES		31,833	34,395	35,100	27,050	35,100	37,206	
CONTRACTUAL SVC & EXP								
25-710-62-7664	MTNC SRVC & RPR-OPERATING EQMT	26	872	1,500		0	0	
25-710-62-7669	MTNC SRVC & RPR-CLEANING & TV	6,150	5,200	10,000		5,000	11,500	CLEANING & TELEVISING OF LINES
25-710-62-7676	MTNC SRVC & RPR	31,232	22,124	20,000	1,385	5,000	90,000	Root Control, Manhole Rehabilitation, Sewer Pipe Mtnc, Mainline Lining & ServiceMaster Restore Contract/Sewer Cleaning
25-710-62-7781	MTNC SRVC & RPR-WATER METERS	37,385	21,026	50,000	32,732	40,000	50,000	
CONTRACTUAL SVC & EXP		74,793	49,222	81,500	34,117	50,000	151,500	
OPERATIONS (0-4999)								
25-710-65-7316	MTNC & RPR-SUPPLIES	11,941	5,869	8,000	3,860	5,000	8,000	
OPERATIONS (0-4999)		11,941	5,869	8,000	3,860	5,000	8,000	

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CAPITAL OUTLAY (5000+)								
25-710-75-6413	SANITARY SEWER					0	0	
25-710-75-7310	NEW OPERATING EQUIPMENT					0	0	
CAPITAL OUTLAY (5000+)		0	0	0	0	0	0	
Totals for dept 710 - SWR LINE OPERATIONS		118,567	89,486	124,600	65,027	90,100	196,706	
Dept 720 - WALMART LIFT STATION								
PERSONNEL SERVICES								
25-720-50-5140	WAGES-LEVEL II	1,983	1,495			0	0	Restructured wage allocations
25-720-50-5160	WAGES-LEVEL IV	1,566	1,645			0	0	
25-720-50-5170	WAGES-LEVEL V	1,219	2,600			0	0	
PERSONNEL SERVICES		4,768	5,740	0	0	0	0	
CONTRACTUAL SVC & EXP								
25-720-62-7676	MTNC SRVC & RPR	1,011	7,766	23,500	21,620	23,500	5,500	Metropolitan Cloud Data Service, Transducer & Misc Repairs
25-720-62-7731	ELECTRICITY	1,374	1,007	1,500	648	1,000	1,000	
CONTRACTUAL SVC & EXP		2,385	8,774	25,000	22,268	24,500	6,500	
OPERATIONS (0-4999)								
25-720-65-7310	NEW OPERATING EQUIPMENT					0	10,000	Purchase New Pump
25-720-65-7316	MTNC & RPR-SUPPLIES	15,369	11,194	10,000	9,875	10,000	10,000	
OPERATIONS (0-4999)		15,369	11,194	10,000	9,875	10,000	20,000	
Totals for dept 720 - WALMART LIFT STATION		22,522	25,708	35,000	32,143	34,500	26,500	
Dept 721 - FOLI LIFT STATION								
PERSONNEL SERVICES								
25-721-50-5140	WAGES-LEVEL II	1,983	1,495			0	0	Restructured wage allocations
25-721-50-5160	WAGES-LEVEL IV	1,566	1,645			0	0	
25-721-50-5170	WAGES-LEVEL V	1,219	2,600			0	0	
PERSONNEL SERVICES		4,768	5,741	0	0	0	0	
CONTRACTUAL SVC & EXP								
25-721-62-7676	MTNC SRVC & RPR	900	10,388	24,000	1,765	2,000	24,000	Generator Maint, Lift Station Cleaning & Scada control panel upgrade
25-721-62-7731	ELECTRICITY	7,591	5,055	7,500	3,502	4,500	5,000	
CONTRACTUAL SVC & EXP		8,491	15,443	31,500	5,267	6,500	29,000	
OPERATIONS (0-4999)								
25-721-65-7310	NEW OPERATING EQUIPMENT					0	0	
25-721-65-7316	MTNC & RPR-SUPPLIES	9,509	10,068	11,000	6,915	11,000	11,000	
OPERATIONS (0-4999)		9,509	10,068	11,000	6,915	11,000	11,000	
OTHER								
25-721-78-7880	DEPRECIATION EXPENSE							
OTHER		0	0	0	0	0	0	
Totals for dept 721 - FOLI LIFT STATION		22,768	31,251	42,500	12,183	17,500	40,000	
Dept 722 - KLATT STREET LIFT STATION								
PERSONNEL SERVICES								
25-722-50-5140	WAGES-LEVEL II	1,983	1,496			0	0	Restructured wage allocations
25-722-50-5160	WAGES-LEVEL IV	1,566	1,645			0	0	
25-722-50-5170	WAGES-LEVEL V	1,215	2,598			0	0	
PERSONNEL SERVICES		4,764	5,738	0	0	0	0	
CONTRACTUAL SVC & EXP								

BUDGET REPORT FOR CITY OF PLANO, IL

GL NUMBER	DESCRIPTION	2020-21 ACTIVITY	2021-22 ACTIVITY	2022-23 AMENDED BUDGET	2022-23 ACTIVITY THRU 2/13/2023	2022-23 PROJECTED ACTIVITY	2023-24 REQUESTED BUDGET	NOTES:
25-722-62-7676	MTNC SRVC & RPR	4,432	223	1,500	1,348	1,348	2,040	Metropolitan Cloud Data Service, Generator Annual Inspection, Mowing Contract (Gorman 20%, Hemmingsen 13%, Klatt Lift Stn 1%, Niles 3%, Wtr Twr #2 5%, Kristen Ball Fields 25%, Well #7 6%, City Lot by PD 5%, Police Stn 2%)
25-722-62-7730	GAS (HEAT & OPERATIONS)	464	540	1,000	1,503	2,000	2,000	
25-722-62-7731	ELECTRICITY	2,845	2,897	3,500	1,975	3,000	3,500	
CONTRACTUAL SVC & EXP		7,741	3,660	6,000	4,826	6,348	7,540	
OPERATIONS (0-4999)								
25-722-65-7310	NEW OPERATING EQUIPMENT					0	0	
25-722-65-7316	MTNC & RPR-SUPPLIES	3,345	10,037	10,000	10,535	10,535	11,000	
OPERATIONS (0-4999)		3,345	10,037	10,000	10,535	10,535	11,000	
Totals for dept 722 - KLATT STREET LIFT STATION		15,850	19,436	16,000	15,361	16,883	18,540	
Dept 749 - OTHER WAGES/METERS								
PERSONNEL SERVICES								
25-749-50-5120	WAGES-SUPERVISOR	8,302	8,660			0	0	Restructured wage allocations
25-749-50-5140	WAGES-LEVEL II	6,657	2,968			0	0	
25-749-50-5150	WAGES-LEVEL III	5,179	9,360			0	0	
25-749-50-5160	WAGES-METER READER	21,056	21,345	21,120	16,372	21,120	22,387	
PERSONNEL SERVICES		41,193	42,333	21,120	16,372	21,120	22,387	
Totals for dept 749 - OTHER WAGES/METERS		41,193	42,333	21,120	16,372	21,120	22,387	
Dept 800 - DEBT								
DEBT SERVICE								
25-800-66-8200	INTEREST EXPENSE					0	0	
DEBT SERVICE		0	0	0	0	0	0	
Totals for dept 800 - DEBT		0	0	0	0	0	0	
Dept 899 - DESIGNATED FOR FUTURE PROJECTS								
DESIGNATED REVENUES								
25-899-39-3998	REVENUES - DESIGNATED					0	0	
DESIGNATED REVENUES		0	0	0	0	0	0	
Totals for dept 899 - DESIGNATED FOR FUTURE PROJECTS		0	0	0	0	0	0	
Dept 900 - TRANSFERS								
TRANSFER OUT								
25-900-99-0990	TRANSFER TO GENERAL FUND					0	0	
25-900-99-2299	TRANSFERS OUT					0	0	
25-900-99-9801	CAPITAL ASSET TRANSFER TO GF					0	0	
25-900-99-9810	CAPITAL ASSET TRSFR TO PARKS					0	0	
25-900-99-9920	TRANSFER TO OPEB	11,015	12,239	12,852	12,852	12,852	13,495	Actuarial Valuation Annual Required Contribution (A new valuation is required in FY'2022) (GF=82%, PRKS=2%, SWR=8%, WTR=8%) Estimate 5% Increase
TRANSFER OUT		11,015	12,239	12,852	12,852	12,852	13,495	
Totals for dept 900 - TRANSFERS		11,015	12,239	12,852	12,852	12,852	13,495	
TOTAL APPROPRIATIONS		1,527,752	1,433,619	2,563,985	1,252,511	1,578,642	3,695,962	TOTAL EXPENSES
NET OF REVENUES/APPROPRIATIONS - FUND 25		289,068	697,932	(488,762)	629,447	591,946	(1,889,092)	
BEGINNING FUND BALANCE				1,880,824		1,880,824	2,472,770	Designated Infrastructure Cash of $268,564 was moved to Operating Cash to assist with the Mixers Project
ENDING FUND BALANCE				1,392,061		2,472,770	583,678	ENDING FUND BALANCE

Plano Sanitary Sewer System Capital Improvement Plan										
Description of Work	**FY 23**	**FY 24**	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**	**FY 30**	**FY 31**	**FY 32**
Long Term Sanitary Flow Monitoring	$50,000							$50,000		
Sanitary Televising and Cleaning (7-year cycle)	$73,500	$73,500	$73,500	$73,500	$73,500	$73,500	$73,500	$73,500	$73,500	$73,500
Sanitary Rehabilitation (assume 25% of inspected)	$290,000	$290,000	$290,000	$290,000	$290,000	$290,000	$290,000			
Sanitary Structures Rehabilitation (assume 25% of inspected)	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000			
Foli Lift Station Condition Assessment		$25,000								
Foli Lift Station Improvements								$1,750,000	$1,750,000	
Klatt Street Lift Station Condition Assessment		$25,000								
Klatt Street Lift Station Improvements							$750,000			
Walmart Lift Station Gravity Sewer Replacement				$850,000	$850,000					
Eldamain Road Interceptor ($4.75 million SRLF loan)	$265,232	$265,232	$265,232	$265,232	$265,232	$265,232	$265,232	$265,232	$265,232	$265,232
WWTP Condtion Assessment & Facility Plan		$100,000								
WWTP Mixers Replacement	$425,000									
WWTP Turbo Blower			$275,000							
WWTP Non-Potable Pumping System				$220,000						
WWTP Drum Thickener Discharge Improvements					$75,000					
WWTP Diffusers Replacement			$60,000							
WWTP Blower Room Ventilation Improvements						$90,000				
WWTP Bar Screen Channel Improvements								$65,000		
WWTP Generator Building Roof Replacement						$60,000				
Annual Total Expenditure	**$1,143,732**	**$818,732**	**$1,003,732**	**$1,738,732**	**$1,593,732**	**$818,732**	**$1,418,732**	**$2,203,732**	**$2,088,732**	**$338,732**

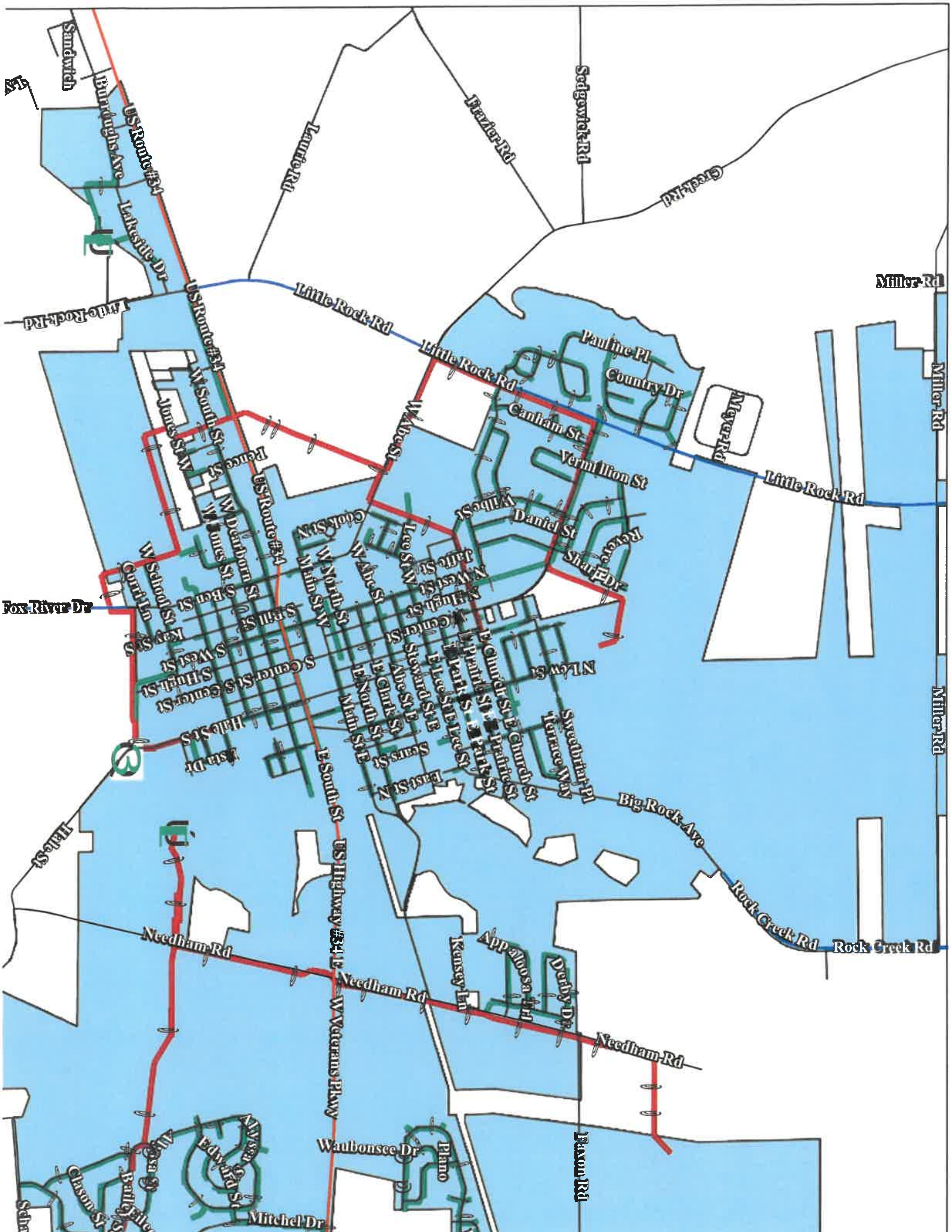
All amounts shown are in 2021 dollars

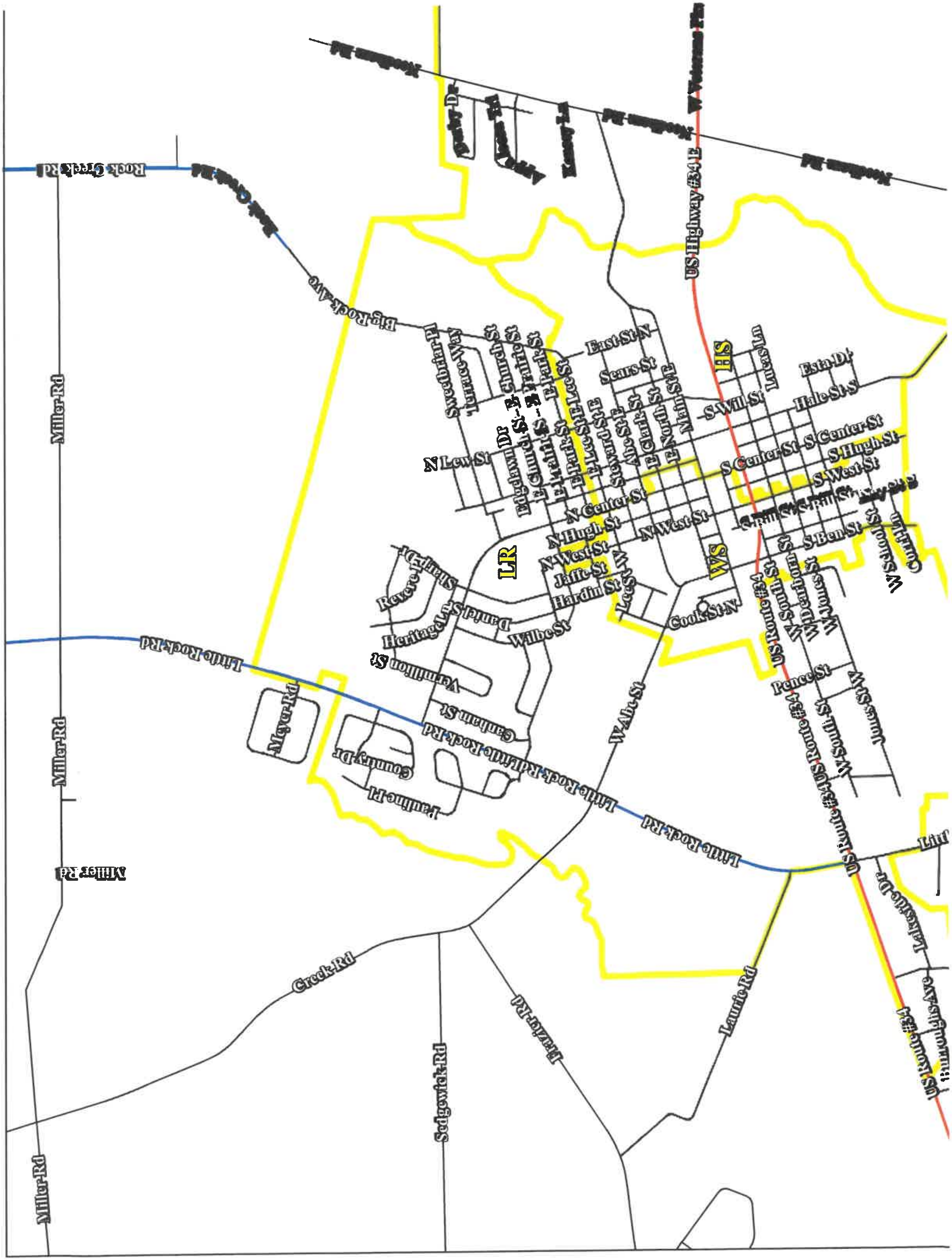
Table 4-1. CMOM Audits Tracking

City of Plano

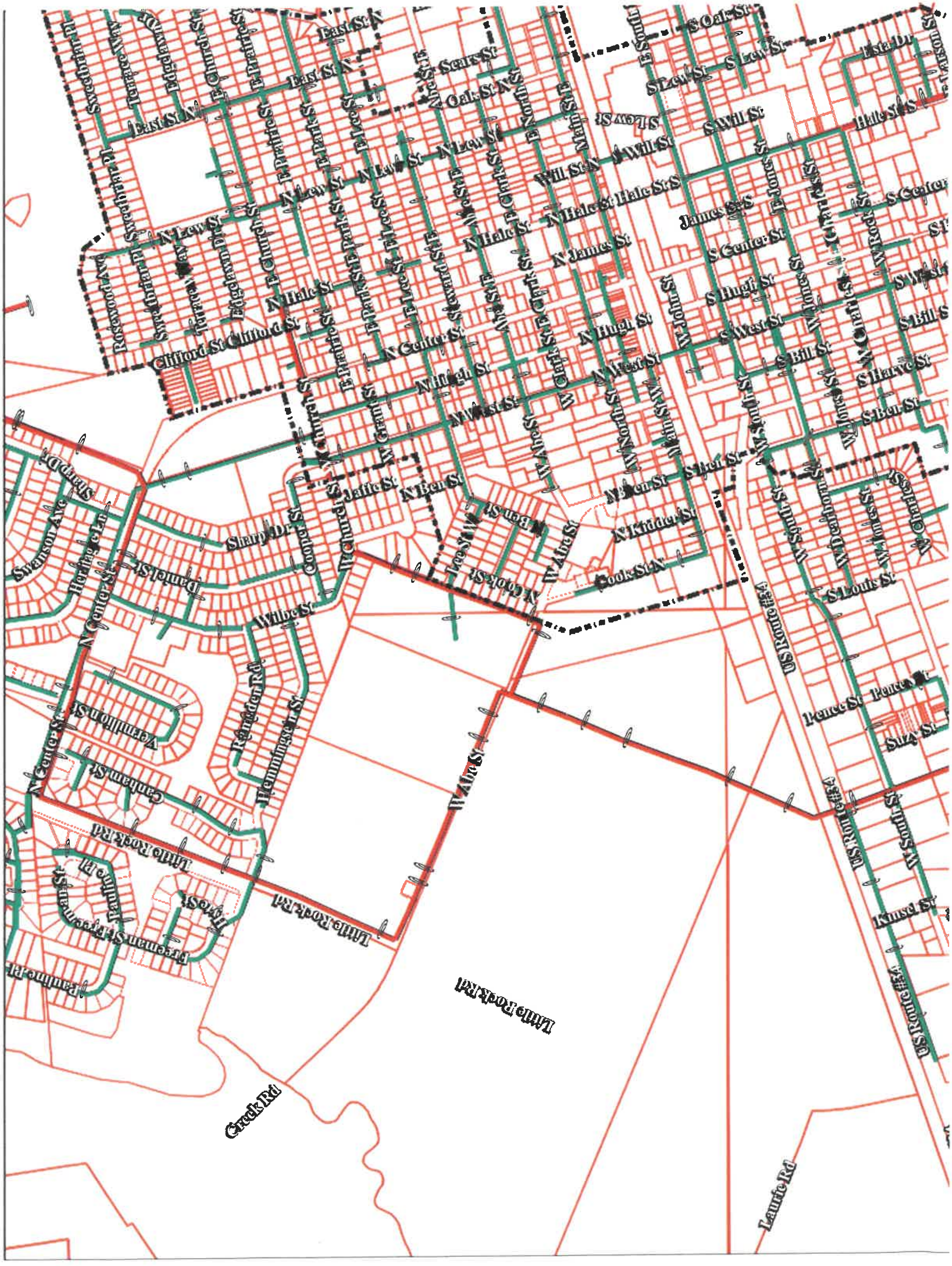
Manual No.	Name	Entity	Date	Revisions Made
1.1	Darrin Boyer	City of Plano	3/31/2023	Updated sections 2.1 and 3.3

Figures


Sandwich
Burroughs Ave
US Route #34
Laurie Rd
Frazier Rd
Sedgewick Rd
Lakeside Dr
Little Rock Rd
Miller Rd
Pauline Pl
Country Dr
Meyer Rd
Canham St
Vermillion St
W Abe St
Daniel St
W South St
Pence St
W Dearborn St
W School St
Fox River Dr
S Ben St
S West St
S Hugh St
S Center St
S Center St
Hale St
N Law St
E Church St
Sweetbriar Pl
Terrace Way
Big Rock Ave
Rock Creek Rd
E South St
US Highway #34
W Veterans Pkwy
Needham Rd
Kensey Ln
Derby Dr
Waubonsee Dr
Plano
Mitchel Dr
Edward St



Rock Creek Rd
Big Rock Ave
Miller Rd
Miller Rd
Miller Rd
Miller Rd
Little Rock Rd
Little Rock Rd
Little Rock Rd
Creek Rd
Sedgwick Rd
Laurie Rd
W Abc St
US Highway #34 E
US Route #34
US Route #34
US Route #34
Sweetbriar Pl
Terrace Way
East St N
Sears St
Lucas Ln
Esta Dr
Hale St S
S Will St
S Center St
S Center St
S Hugh St
S West St
S Ben St
N Lew St
Edgelawn Dr
N Center St
N Hugh St
N West St
N West St
Jaffe St
Hardin St
Lee St
E North St
Main St E
Stewart St E
Cook St N
Pence St
W South St
W Dearborn St
W Jones St
W School St
Meyer Rd
Vermillion St
Heritage Ln
Daniel St
Wilbe St
Revere
Country Dr
Pauline Pl
Lakeside Dr
HS
WS
LR



Sweetbriar Pl
Terrace Way
Edgelawn Dr
E Church St
E Prairie St
East St N
Sears St
Oak St N
S Oak St
S Lew St
S Will St
Hale St S
Esta Dr
N Lew St
Will St N
N Hale St
Hale St S
James St S
S Center St
N James St
Rosewood Ave
Clifford St
N Center St
N Hugh St
S Hugh St
S West St
N West St
S Bill St
S Harve St
S Ben St
N Ben St
Jaffe St
Sharp Dr
Cooper St
Swanson Ave
Heritage Ln
Daniel St
Wilbe St
Vermillion St
Hemmingsen St
Canham St
Little Rock Rd
Freeman St
Pauline Pl
Lee St W
W Abe St
N Cook St
Cook St N
N Kidder St
US Route #34
S Louis St
Pence St
Suzy St
W South St
Creek Rd
Laurie Rd
W Dearborn St
W Jones St
W Charles St
W John St
Main St
W North St
W Clark St
E Clark St
W Church St
W Grant St

Appendix A

City of Plano NPDES Permit

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
JB PRITZKER, GOVERNOR
JOHN J. KIM, ACTING DIRECTOR

217/782-0610

February 01, 2022

City of Plano
17 East Main Street
Plano, Illinois 60545

Re: City of Plano
City of Plano - STP
NPDES Permit No. IL0020052
Bureau ID: W0930200005
Final Permit

Gentlemen:

Attached is the final NPDES Permit for your discharge. The Permit as issued covers discharge limitations, monitoring, and reporting requirements. Failure to meet any portion of the Permit could result in civil and/or criminal penalties. The Illinois Environmental Protection Agency is ready and willing to assist you in interpreting any of the conditions of the Permit as they relate specifically to your discharge.

Pursuant to the Final NPDES Electronic Reporting Rule, all permittees must report DMRs electronically unless a waiver has been granted by the Agency. The Agency utilizes NetDMR, a web based application, which allows the submittal of electronic Discharge Monitoring Reports instead of paper Discharge Monitoring Reports (DMRs). More information regarding NetDMR can be found on the Agency website, https:www2.illinois.gov/epa/topics/water-quality/surface-water/netdmr/pages/quick-answer-guide.aspx. If your facility has received a waiver from the NetDMR program, a supply of preprinted paper DMR Forms will be sent to your facility. Additional information and instructions will accompany the preprinted DMRs. Please see the attachment regarding the electronic reporting rule.

The attached Permit is effective as of the date indicated on the first page of the Permit. Until the effective date of any re-issued Permit, the limitations and conditions of the previously issued Permit remain in full effect. You have the right to appeal any condition of the Permit to the Illinois Pollution Control Board within a 35 day period following the issuance date.

Should you have questions concerning the Permit, please contact Getie Yilma at 217/782-0610.

Sincerely,

Darin E. LeCrone, P.E.
Manager, Permit Section
Division of Water Pollution Control

BDF:BDF:GY:210801 IL0020052 Plano.docx

Attachment: Final Permit

cc: Records
Compliance Assurance Section
Des Plaines Region
Deuchler Engineering Corporation
Billing
Facility

NPDES Permit No. IL0020052

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue East

Post Office Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Reissued (NPDES) Permit

Expiration Date: February 28, 2027

Issue Date: February 01, 2022
Effective Date: March 01, 2022

Name and Address of Permittee:

City of Plano
17 East Main Street
Plano, Illinois 60545

Facility Name and Address:

City of Plano - STP
1001 South Hale Street
Plano, Illinois 60545
(Kendall County)

Receiving Waters: Big Rock Creek

In compliance with the provisions of the Illinois Environmental Protection Act, Title 35 of the Ill. Adm. Code, Subtitle C, Chapter I, and the Clean Water Act (CWA), the above-named Permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the Effluent Limitations, Monitoring, and Reporting requirements; Special Conditions and Attachment H Standard Conditions attached herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the Permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.

Darin E. LeCrone, P.E.
Manager, Permit Section
Division of Water Pollution Control

BDF:GY:210801 IL0020052 Plano.docx

NPDES Permit No. IL0020052

Effluent Limitations, Monitoring, and Reporting

FINAL

Discharge Number(s) and Name(s): 001 STP Outfall (Existing)

Load limits computed based on a design average flow (DAF) of 2.44 MGD (design maximum flow (DMF) of 5.66 MGD).

From the effective date of this Permit until the completion and start of operation of the proposed plant expansion or expiration date whichever comes first, the effluent of the above discharge(s) shall be monitored and limited at all times as follows:

	LOAD LIMITS lbs/day DAF (DMF)*			CONCENTRATION LIMITS MG/L				
Parameter	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum	Sample Frequency	Sample Type
Flow (MGD)							Continuous	RIT(1)
$CBOD_5$**(2)	204 (472)		407 (944)	10		20	1 Day/Week	Composite
Suspended Solids(2)	244 (566)		488 (1,133)	12		24	1 Day/Week	Composite
pH	Shall be in the range of 6 to 9 Standard Units						1 Day/Week	Grab
Chlorine Residual						0.038	***	Grab
Fecal Coliform***	Daily Maximum shall not exceed 400 per 100 mL (May through October)						1 Day/Week	Grab
Ammonia Nitrogen as (N)								
March-October	28 (66)		61 (142)	1.4		3.0	1 Day/Week	Composite
November-February	47 (109)		79 (184)	2.3		3.9	1 Day/Week	Composite
Total Phosphorus (as P)	20 (47)			1.0			1 Day/Week	Composite
Nickel	0.57 (1.3)			0.028			3 Days/Month	Composite
Dissolved Phosphorus	Monitor Only						1 Day/Month	Composite
Nitrate/Nitrite	Monitor Only						1 Day/Month	Composite
Total Kjeldahl Nitrogen (TKN)	Monitor Only						1 Day/Month	Composite
Alkalinity	Monitor Only						1 Day/Month	Grab
Temperature	Monitor Only						1 Day/Month	Grab

				Monthly Average not less than	Weekly Average not less than	Daily Minimum		
Dissolved Oxygen								
March - July				N.A.	6.25	5.0	3 Days/Week	Grab
August - February				6.0	4.5	4.0	3 Days/Week	Grab

NPDES Permit No. IL0020052

Effluent Limitations, Monitoring, and Reporting

FINAL

Discharge Number(s) and Name(s): 001 STP Outfall (Existing) (continued)

*Load limits based on design maximum flow shall apply only when flow exceeds design average flow.
**Carbonaceous BOD_5 ($CBOD_5$) testing shall be in accordance with 40 CFR 136.
***See Special Condition 7.

Flow shall be reported on the Discharge Monitoring Report (DMR) as monthly average and daily maximum.
Fecal Coliform shall be reported on the DMR as a monthly average.
pH shall be reported on the DMR as minimum and maximum value.
Chlorine Residual shall be reported on DMR as maximum value.
Dissolved oxygen shall be reported on the DMR as a minimum value.
Total Phosphorus shall be reported on the DMR as monthly average and daily maximum value.
Total Nitrogen shall be reported on the DMR as a daily maximum value. Total Nitrogen is the sum total of Total Kjeldahl Nitrogen, Nitrate, and Nitrite.

(1)Recording, Indicating, Totalizing.

(2)BOD_5 and Suspended Solids (85% removal required): In accordance with 40 CFR 133, the 30-day average percent removal shall not be less than 85 percent. The percent removal need not be reported to the IEPA on DMRs but influent and effluent data must be available, as required elsewhere in this Permit, for IEPA inspection and review. For measuring compliance with this requirement, 5 mg/L shall be added to the effluent $CBOD_5$ concentration to determine the effluent BOD_5 concentration or laboratory analysis for the determination of BOD_5 may be used. Percent removal is a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period.

NPDES Permit No. IL0020052

Effluent Limitations, Monitoring, and Reporting

FINAL

Discharge Number(s) and Name(s): 001 STP Outfall (Proposed Plant)

Load limits computed based on a design average flow (DAF) of 4.88 MGD (design maximum flow (DMF) of 11.32 MGD).

From the completion and start of operation of the proposed plant expansion until the expiration date, the effluent of the above discharge(s) shall be monitored and limited at all times as follows:

	LOAD LIMITS lbs/day DAF (DMF)*			CONCENTRATION LIMITS MG/L				
Parameter	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum	Sample Frequency	Sample Type
Flow (MGD)							Continuous	RIT[1]
$CBOD_5$**[2]	407 (944)		814 (1,888)	10		20	1 Day/Week	Composite
Suspended Solids[2]	488 (1,133)		977 (2,266)	12		24	1 Day/Week	Composite
pH	Shall be in the range of 6 to 9 Standard Units						1 Day/Week	Grab
Chlorine Residual						0.038	***	Grab
Fecal Coliform***	Daily Maximum shall not exceed 400 per 100 mL (May through October)						1 Day/Week	Grab
Ammonia Nitrogen as (N)								
March-October	57 (132)		122 (283)	1.4		3.0	1 Day/Week	Composite
November-February	94 (217)		159 (368)	2.3		3.9	1 Day/Week	Composite
Total Phosphorus (as P)	41 (94)			1.0			1 Day/Week	Composite
Nickel	1.1 (2.6)					0.028	3 Days/Month	Composite
Total Nitrogen (as N)	Monitor Only						1 Day/Month	Composite
Dissolved Phosphorus	Monitor Only						1 Day/Month	Composite
Nitrate/Nitrite	Monitor Only						1 Day/Month	Composite
Total Kjeldahl Nitrogen (TKN)	Monitor Only						1 Day/Month	Composite
Alkalinity	Monitor Only						1 Day/Month	Grab
Temperature	Monitor Only						1 Day/Month	Grab
				Monthly Average not less than	Weekly Average not less than	Daily Minimum		
Dissolved Oxygen								
March - July				N.A.	6.25	5.0	1 Day/Week	Grab
August - February				6.0	4.5	4.0	1Day/Week	Grab

NPDES Permit No. IL0020052

Effluent Limitations, Monitoring, and Reporting

FINAL

Discharge Number(s) and Name(s): 001 STP Outfall (Proposed Plant) (continued)

*Load limits based on design maximum flow shall apply only when flow exceeds design average flow.
**Carbonaceous BOD_5 ($CBOD_5$) testing shall be in accordance with 40 CFR 136.
***See Special Condition 7.

Flow shall be reported on the Discharge Monitoring Report (DMR) as monthly average and daily maximum.
Fecal Coliform shall be reported on the DMR as a monthly average.
pH shall be reported on the DMR as minimum and maximum value.
Chlorine Residual shall be reported on DMR as maximum value.
Dissolved oxygen shall be reported on the DMR as a minimum value.
Total Phosphorus shall be reported on the DMR as monthly average and daily maximum value.
Total Nitrogen shall be reported on the DMR as a daily maximum value. Total Nitrogen is the sum total of Total Kjeldahl Nitrogen, Nitrate, and Nitrite.

(1)Recording, Indicating, Totalizing.

(2)BOD_5 and Suspended Solids (85% removal required): In accordance with 40 CFR 133, the 30-day average percent removal shall not be less than 85 percent. The percent removal need not be reported to the IEPA on DMRs but influent and effluent data must be available, as required elsewhere in this Permit, for IEPA inspection and review. For measuring compliance with this requirement, 5 mg/L shall be added to the effluent $CBOD_5$ concentration to determine the effluent BOD_5 concentration or laboratory analysis for the determination of BOD_5 may be used. Percent removal is a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period.

NPDES Permit No. IL0020052

Influent Monitoring, and Reporting

The influent to the plant shall be monitored as follows:

Parameter	Sample Frequency	Sample Type
Flow (MGD)	Continuous	RIT[1]
BOD_5	1Day/Week	Composite
Suspended Solids	1 Day/Week	Composite
Total Phosphorus (as P)	1 Day/Month	Composite
Total Nitrogen (as N)	1 Day/Month	Composite

Influent samples shall be taken at a point representative of the influent.

Flow (MGD) shall be reported on the Discharge Monitoring Report (DMR) as monthly average and daily maximum.

BOD_5 and Suspended Solids shall be reported on the DMR as a monthly average concentration.

[1]Recording, Indicating, Totalizing.

Total Phosphorus shall be reported on the DMR as a daily maximum value.

Total Nitrogen shall be reported on the DMR as a daily maximum value. Total Nitrogen is the sum total of Total Kjeldahl Nitrogen, Nitrate, and Nitrite.

NPDES Permit No. IL0020052

Special Conditions

SPECIAL CONDITION 1. This Permit may be modified to include different final effluent limitations or requirements which are consistent with applicable laws and regulations. The IEPA will public notice the permit modification.

SPECIAL CONDITION 2. The use or operation of this facility shall be by or under the supervision of a Certified Class 1 operator.

SPECIAL CONDITION 3. The IEPA may request in writing submittal of operational information in a specified form and at a required frequency at any time during the effective period of this Permit.

SPECIAL CONDITION 4. The IEPA may request more frequent monitoring by permit modification pursuant to 40 CFR § 122.63 and Without Public Notice.

SPECIAL CONDITION 5. The effluent, alone or in combination with other sources, shall not cause a violation of any applicable water quality standard outlined in 35 Ill. Adm. Code 302 and 303.

SPECIAL CONDITION 6. The Permittee shall record monitoring results on Discharge Monitoring Report (DMR) electronic forms using one such form for each outfall each month.

In the event that an outfall does not discharge during a monthly reporting period, the DMR Form shall be submitted with no discharge indicated.

The Permittee is required to submit electronic DMRs (NetDMRs) instead of mailing paper DMRs to the IEPA unless a waiver has been granted by the Agency. More information, including registration information for the NetDMR program, can be obtained on the IEPA website, https:www2.illinois.gov/epa/topics/water-quality/surface-water/netdmr/pages/quick-answer-guide.aspx.

The completed Discharge Monitoring Report forms shall be submitted to IEPA no later than the 25th day of the following month, unless otherwise specified by the permitting authority.

Permittees that have been granted a waiver shall mail Discharge Monitoring Reports with an original signature to the IEPA at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attention: Compliance Assurance Section, Mail Code # 19
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

SPECIAL CONDITION 7. The provisions of 40 CFR Section 122.41(m) & (n) are incorporated herein by reference.

SPECIAL CONDITION 8. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

SPECIAL CONDITION 9. This Permit may be modified to include alternative or additional final effluent limitations pursuant to an approved Total Maximum Daily Load (TMDL) Study or upon completion of an alternate Water Quality Study.

SPECIAL CONDITION 10. Fecal Coliform limits for Discharge Number 001 are effective May thru October. Sampling of Fecal Coliform is only required during this time period.

Any use of chlorine to control slime growths, odors or as an operational control, etc. shall not exceed the limit of 0.05 mg/L (daily maximum) total residual chlorine in the effluent. Sampling is required on a daily grab basis during the chlorination process. Reporting shall be submitted on the DMR's on a monthly basis.

SPECIAL CONDITION 11. The Permittee shall conduct semi-annual monitoring of the effluent and report concentrations (in mg/L) of the following listed parameters. Monitoring shall begin three (3) months from the effective date of this permit. The sample shall be a 24-hour effluent composite except as otherwise specifically provided below and the results shall be submitted on Discharge Monitoring Report (DMR) forms, unless otherwise specified by the IEPA. The parameters to be sampled and the minimum reporting limits to be attained are as follows:

STORET CODE	PARAMETER	Minimum reporting limit
01002	Arsenic	0.05 mg/L
01007	Barium	0.5 mg/L

NPDES Permit No. IL0020052

Special Conditions

01027	Cadmium	0.001 mg/L
01032	Chromium (hexavalent) (grab)	0.01 mg/L
01034	Chromium (total)	0.05 mg/L
01042	Copper	0.005 mg/L
00720	Cyanide (total) (grab)***	5.0 µg/L
00722	Cyanide (grab) (available**** or amenable to chlorination)***	5.0 µg/L
00951	Fluoride	0.1 mg/L
01045	Iron (total)	0.5 mg/L
01046	Iron (Dissolved)	0.5 mg/L
01051	Lead	0.05 mg/L
01055	Manganese	0.5 mg/L
71900	Mercury (grab)**	1.0 ng/L*
01067	Nickel	0.005 mg/L
00556	Oil (hexane soluble or equivalent) (Grab Sample only)	5.0 mg/L
32730	Phenols (grab)	0.005 mg/L
01147	Selenium	0.005 mg/L
01077	Silver (total)	0.003 mg/L
01092	Zinc	0.025 mg/L

The minimum reporting limit for each parameter is specified by Illinois EPA as the regulatory authority.

The minimum reporting limit for each parameter shall be greater than or equal to the lowest calibration standard and within the acceptable calibration range of the instrument.

The minimum reporting limit is the value below which data are to be reported as non-detects.

The statistically-derived laboratory method detection limit for each parameter shall be less than the minimum reporting limit required for that parameter.

All sample containers, chemical and thermal preservation, holding times, analyses, method detection limit determinations and quality assurance/quality control requirements shall be in accordance with 40 CFR Part 136.

Unless otherwise indicated, concentrations refer to the total amount of the constituent present in all phases, whether solid, suspended or dissolved, elemental or combined, including all oxidation states.

*1.0 ng/L = 1 part per trillion.
**Utilize USEPA Method 1631E and the digestion procedure described in Section 11.1.1.2 of 1631E.
***Analysis for cyanide (available or amenable to chlorination) is only required if cyanide (total) is detected at or above the minimum reporting limit.
****USEPA Method OIA-1677 or Standard Method SM 4500-CN G.

The Permittee shall provide a report briefly describing the permittee's pretreatment activities and an updated listing of the Permittee's significant industrial users. The list should specify which categorical pretreatment standards, if any, are applicable to each Industrial User. Permittees who operate multiple plants may provide a single report. Such report shall be submitted within six (6) months of the effective date of this Permit to the following addresses:

U.S. Environmental Protection Agency
Region 5
77 West Jackson Blvd.
Chicago, Illinois 60604
Attention: Water Assurance Branch Enforcement and Compliance

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attention: Compliance Assurance Section, Mail Code #19
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

NPDES Permit No. IL0020052

Special Conditions

SPECIAL CONDITION 12. During January of each year the Permittee shall submit annual fiscal data regarding sewerage system operations to the Illinois Environmental Protection Agency/Division of Water Pollution Control/Compliance Assurance Section. The Permittee may use any fiscal year period provided the period ends within twelve (12) months of the submission date. Submission shall be on the form titled "Fiscal Report Form For NPDES Permittees" and submitted electronically to EPA.PrmtSpecCondtns@illinois.gov with "IL0020052 Special Condition 12" as the subject of the email. Forms are available on the following webpage: https://www2.illinois.gov/epa/topics/forms/water-forms/Pages/wastewater-compliance.aspx.

SPECIAL CONDITION 13. The Permittee shall conduct biomonitoring of the effluent from Discharge Number(s) 001.

Biomonitoring

A. Acute Toxicity - Standard definitive acute toxicity tests shall be run on at least two trophic levels of aquatic species (fish, invertebrate) representative of the aquatic community of the receiving stream. Testing must be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (Fifth Edition) EPA/821-R-02-012, October 2002, and Whole Effluent Toxicity Methods Errata Sheet EPA/821-R-02-012-ES, December 2016. Unless substitute tests are pre-approved; the following tests are required:

1. Fish 96-hour static LC50 Bioassay using fathead minnows (Pimephales promelas).

2. Invertebrate 48-hour static LC50 Bioassay using Ceriodaphnia.

B. Testing Frequency - The above tests shall be conducted using 24-hour composite samples unless otherwise authorized by the IEPA. Sample collection and testing must be conducted in the 18th, 15th, 12th, and 9th month prior to the expiration date of this Permit. When possible, bioassay sample collection should coincide with sample collection for metals analysis or other parameters that may contribute to effluent toxicity.

C. Reporting - Results shall be reported according to EPA/821-R-02-012, Section 12, Report Preparation, and shall be mailed to IEPA, Bureau of Water, Compliance Assurance Section or emailed to EPA.PrmtSpecCondtns@Illinois.gov within one week of receipt from the laboratory. Reports are due to the IEPA no later than the 16th, 13th, 10th, and 7th month prior to the expiration date of this Permit.

D. Toxicity – Should a bioassay result in toxicity to >20% of organisms tested in the 100% effluent treatment, the IEPA may require, upon notification, six (6) additional rounds of monthly testing on the affected organism(s) to be initiated within 30 days of the toxic bioassay. Results shall be submitted to IEPA within one (1) week of becoming available to the Permittee. Should any of the additional bioassays result in toxicity to ≥50% of organisms tested in the 100% effluent treatments, the Permittee must contact the IEPA within one (1) day of the results becoming available to the Permittee and begin the toxicity identification and reduction evaluation process as outlined below.

E. Toxicity Identification and Reduction Evaluation - Should any of the additional bioassays result in toxicity to ≥50% of organisms tested in the 100% effluent treatment, the Permittee must contact the IEPA within one (1) day of the results becoming available to the Permittee and begin the toxicity identification evaluation process in accordance with Methods for Aquatic Toxicity Identification Evaluations, EPA/600/6-91/003. The IEPA may also require, upon notification, that the Permittee prepare a plan for toxicity reduction evaluation to be developed in accordance with Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833B-99/002, which shall include an evaluation to determine which chemicals have a potential for being discharged in the plant wastewater, a monitoring program to determine their presence or absence and to identify other compounds which are not being removed by treatment, and other measures as appropriate. The Permittee shall submit to the IEPA its plan for toxicity reduction evaluation within ninety (90) days following notification by the IEPA. The Permittee shall implement the plan within ninety (90) days or other such date as contained in a notification letter received from the IEPA.

The IEPA may modify this Permit during its term to incorporate additional requirements or limitations based on the results of the biomonitoring. In addition, after review of the monitoring results, the IEPA may modify this Permit to include numerical limitations for specific toxic pollutants. Modifications under this condition shall follow public notice and opportunity for hearing.

SPECIAL CONDITION 14. For the duration of this Permit, the Permittee shall determine the quantity of sludge produced by the treatment facility in dry tons or gallons with average percent total solids analysis. The Permittee shall maintain adequate records of the quantities of sludge produced and have said records available for U.S. EPA and IEPA inspection. The Permittee shall submit to the IEPA, at a minimum, a semi-annual summary report of the quantities of sludge generated and disposed of, in units of dry tons or gallons (average total percent solids) by different disposal methods including but not limited to application on farmland, application on reclamation land, landfilling, public distribution, dedicated land disposal, sod farms, storage lagoons or any other specified disposal method. Said reports shall be submitted to the IEPA by January 31 and July 31 of each year reporting the preceding January thru June and July thru December interval of sludge disposal operations.

Duty to Mitigate. The Permittee shall take all reasonable steps to minimize any sludge use or disposal in violation of this Permit.

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Special Conditions

Sludge monitoring must be conducted according to test procedures approved under 40 CFR 136 unless otherwise specified in 40 CFR 503, unless other test procedures have been specified in this Permit.

Planned Changes. The Permittee shall give notice to the IEPA on the semi-annual report of any changes in sludge use and disposal.

The Permittee shall retain records of all sludge monitoring, and reports required by the Sludge Permit as referenced in Standard Condition 25 for a period of at least five (5) years from the date of this Permit.

If the Permittee monitors any pollutant more frequently than required by this permit or the Sludge Permit, the results of this monitoring shall be included in the reporting of data submitted to the IEPA.

The Permittee shall comply with existing federal regulations governing sewage sludge use or disposal and shall comply with all existing applicable regulations in any jurisdiction in which the sewage sludge is actually used or disposed.

The Permittee shall comply with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish the standards for sewage sludge use or disposal even if the permit has not been modified to incorporate the requirement.

The Permittee shall ensure that the applicable requirements in 40 CFR Part 503 are met when the sewage sludge is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator.

Monitoring reports for sludge shall be reported on the form titled "Sludge Management Reports" to the following address:

Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section
Mail Code #19
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

SPECIAL CONDITION 15. The Permittee shall convey 100 percent of its treated wastewater to the Cedar Dell Golf Course irrigation water holding pond. From the months of April through October it shall be the goal to apply an average of 400,000 gallons per day to the golf course. In November of each year, the Permittee shall report the quantities discharged during the months of April through October and the amount diverted on the Discharge Monitoring Reports. The Permittee shall obtain an applicable State operating permit for land application of tertiary wastewater effluent. The treated wastewater utilized for irrigation shall be disinfected prior to being land applied.

SPECIAL CONDITION 16. The Permittee shall monitor the wastewater effluent for Total Phosphorus, Dissolved Phosphorus, Nitrate/Nitrite, Total Kjeldahl Nitrogen (TKN), Ammonia, Total Nitrogen (calculated), Alkalinity and Temperature at least once a month beginning on the effective date of this permit. The results shall be submitted on Discharge Monitoring Report (DMR) Forms or NetDMRs to IEPA unless otherwise specified by the IEPA.

SPECIAL CONDITION 17. The Permittee shall participate in the Fox River Study Group (FRSG) throughout the duration of this permit cycle. The Permittee shall work with other watershed members of the FRSG to determine the most cost effective means to remove dissolved oxygen (DO) impairment and offensive condition impairments in the Fox River to the extent feasible. The Permittee shall participate in the FRSG for the completion of the following tasks set out in the 2015 Fox River Implementation Plan (either by the permittee or through the FRSG) by the schedule dates set forth below:

A. The Permittee shall implement the recommendations of the 2015 Fox River Implementation Plan that are applicable to said Permittee during the term of this Permit.
B. The FRSG will conduct these activities during the term of the permit:
   1. Work with the Army Corps of Engineers and Illinois Department of Natural Resources to restart the Fox River Habitat & Connectivity Study.
   2. Collect continuous dissolved oxygen data and other water quality parameters at the Stratton Dam from April through September 2019, 2020, and 2021 to update the FRSG's water quality model.
   3. Analyze Fox River and Major Tributary Water Quality Data and Trends, for the period 1998-2016 by December 31, 2018.
   4. Update the Fox River DB database with newly collected data, by July 31, 2019.
   5. Amend the modelling and use the modified model to reevaluate water quality improvement scenarios, by August 31, 2019.
   6. Amend the Implementation Plan by December 31, 2022 based on the improved modelling and which will include proposed watershed improvement projects.
C. The Permittee shall submit electronically to EPA.PrmtSpecCondtns@illinois.gov with "IL0020052 Special Condition 17" as the subject of the email and posted to the permittees website an annual progress report on the activities identified in Item B above to the

Agency by March 31 of each year. The Permittee may work cooperatively with the FRSG to prepare a single annual progress report that is common among FRSG permittees.

D. In its application for renewal of this permit, the Permittee shall consider and incorporate recommended FRSG activities listed in the Implementation Plan that the Permittee will implement during the next permit term.

SPECIAL CONDITION 18. The Permittee shall work towards the goals of achieving no discharges from sanitary sewer overflows or basement back-ups and ensuring that overflows or back-ups, when they do occur do not cause or contribute to violations of applicable standards or cause impairment in any adjacent receiving water. Overflows from sanitary sewers are expressly prohibited by this permit and by 35 Ill. Adm. Code 306.304. As part of the process to ultimately achieve compliance through the elimination of and mitigating the adverse impacts of any such overflows if they do occur, the Permittee shall (A) identify and report to IEPA all SSOs that do occur, and (B) update the existing Capacity, Management, Operations, and Maintenance (CMOM) plan at least annually and maintain it at the facility for review during Agency Field Operations Section inspections. The CMOM shall be submitted electronically to EPA.PrmtSpecCondtns@illinois.gov with "IL0020052 Special Condition 18" as the subject of the email and posted to the permittees website by March 31 of each year. The Permittee shall modify the Plan to incorporate any comments that it receives from IEPA and shall implement the modified plan as soon as possible. The Permittee should work as appropriate, in consultation with affected authorities at the local, county, and/or state level to develop the plan components involving third party notification of overflow events. The Permittee may be required to construct additional sewage transport and/or treatment facilities in future permits or other enforceable documents should the implemented CMOM plan indicate that the Permittee's facilities are not capable of conveying and treating the flow for which they are designed.The CMOM plan shall include the following elements:

A. Measures and Activities:

1. A complete map and system inventory for the collection system owned and operated by the Permittee;
2. Organizational structure; budgeting; training of personnel; legal authorities; schedules for maintenance, sewer system cleaning, and preventative rehabilitation; checklists, and mechanisms to ensure that preventative maintenance is performed on equipment owned and operated by the Permittee;
3. Documentation of unplanned maintenance;
4. An assessment of the capacity of the collection and treatment system owned and operated by the Permittee at critical junctions and immediately upstream of locations where overflows and back-ups occur or are likely to occur; use flow monitoring as necessary;
5. Identification and prioritization of structural deficiencies in the system owned and operated by the Permittee;
6. Operational control, including documented system control procedures, scheduled inspections and testing;
7. The Permittee shall develop and implement an Asset Management strategy to ensure the long-term sustainability of the collection system. Asset management shall be used to assist the Permittee in making decisions on when it is most appropriate to repair, replace or rehabilitate particular assets and develop long-term funding strategies; and
8. Asset management shall include but is not limited to the following elements:
   a. Asset Inventory and State of the Asset;
   b. Level of Service;
   c. Critical Asset Identification;
   d. Life Cycle Cost; and
   e. Long-Term Funding Strategy.

B. Design and Performance Provisions:

1. Monitor the effectiveness of CMOM;
2. Upgrade the elements of the CMOM plan as necessary; and
3. Maintain a summary of CMOM activities.

C. Overflow Response Plan:

1. Know where overflows and back-ups within the facilities owned and operated by the Permittee occur;
2. Respond to each overflow or back-up to determine additional actions such as clean up; and
3. Locations where basement back-ups and/or sanitary sewer overflows occur shall be evaluated as soon as practicable for excessive inflow /infiltration, obstructions or other causes of overflows or back-ups as set forth in the System Evaluation Plan.

D. System Evaluation Plan:

1. Summary of existing SSO and Excessive I/I areas in the system and sources of contribution;
2. Evaluate plans to reduce I/I and eliminate SSOs;
3. Special provisions for Pump Stations and force mains and other unique system components; and
4. Construction plans and schedules for correction.

E. Reporting and Monitoring Requirements:

1. Program for SSO detection and reporting; and
2. Program for tracking and reporting basement back-ups, including general public complaints.

Attachment H

Standard Conditions

Definitions

Act means the Illinois Environmental Protection Act, 415 ILCS 5 as Amended.

Agency means the Illinois Environmental Protection Agency.

Board means the Illinois Pollution Control Board.

Clean Water Act (formerly referred to as the Federal Water Pollution Control Act) means Pub. L 92-500, as amended. 33 U.S.C. 1251 et seq.

NPDES (National Pollutant Discharge Elimination System) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the Clean Water Act.

USEPA means the United States Environmental Protection Agency.

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Maximum Daily Discharge Limitation (daily maximum) means the highest allowable daily discharge.

Average Monthly Discharge Limitation (30 day average) means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Discharge Limitation (7 day average) means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Aliquot means a sample of specified volume used to make up a total composite sample.

Grab Sample means an individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

24-Hour Composite Sample means a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period.

8-Hour Composite Sample means a combination of at least 3 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over an 8-hour period.

Flow Proportional Composite Sample means a combination of sample aliquots of at least 100 milliliters collected at periodic intervals such that either the time interval between each aliquot or the volume of each aliquot is proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot.

(1) **Duty to comply**. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.

(2) **Duty to reapply**. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. If the permittee submits a proper application as required by the Agency no later than 180 days prior to the expiration date, this permit shall continue in full force and effect until the final Agency decision on the application has been made.

(3) **Need to halt or reduce activity not a defense**. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(4) **Duty to mitigate**. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

(5) **Proper operation and maintenance**. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up, or auxiliary facilities, or similar systems only when necessary to achieve compliance with the conditions of the permit.

(6) **Permit actions**. This permit may be modified, revoked and reissued, or terminated for cause by the Agency pursuant to 40 CFR 122.62 and 40 CFR 122.63. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

(7) **Property rights**. This permit does not convey any property rights of any sort, or any exclusive privilege.

(8) **Duty to provide information**. The permittee shall furnish to the Agency within a reasonable time, any information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Agency upon request, copies of records required to be kept by this permit.

(9) **Inspection and entry**. The permittee shall allow an authorized representative of the Agency or USEPA (including an authorized contractor acting as a representative of the Agency or USEPA), upon the presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records

must be kept under the conditions of this permit;
(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
(d) Sample or monitor at reasonable times, for the purpose of assuring permit compliance, or as otherwise authorized by the Act, any substances or parameters at any location.

(10) **Monitoring and records.**
(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
(b) The permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of this permit, measurement, report or application. Records related to the permittee's sewage sludge use and disposal activities shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503). This period may be extended by request of the Agency or USEPA at any time.
(c) Records of monitoring information shall include:
(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.
(d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. Where no test procedure under 40 CFR Part 136 has been approved, the permittee must submit to the Agency a test method for approval. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to ensure accuracy of measurements.

(11) **Signatory requirement.** All applications, reports or information submitted to the Agency shall be signed and certified.
(a) **Application.** All permit applications shall be signed as follows:
(1) For a corporation: by a principal executive officer of at least the level of vice president or a person or position having overall responsibility for environmental matters for the corporation:
(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
(3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
(b) **Reports.** All reports required by permits, or other information requested by the Agency shall be signed by a person described in paragraph (a) or by a duly authorized representative of that person. A person is a duly authorized representative only if:
(1) The authorization is made in writing by a person described in paragraph (a); and
(2) The authorization specifies either an individual or a position responsible for the overall operation of the facility, from which the discharge originates, such as a plant manager, superintendent or person of equivalent responsibility; and
(3) The written authorization is submitted to the Agency.
(c) **Changes of Authorization.** If an authorization under (b) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of (b) must be submitted to the Agency prior to or together with any reports, information, or applications to be signed by an authorized representative.
(d) **Certification.** Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

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 persons 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.

(12) **Reporting requirements.**
(a) **Planned changes.** The permittee shall give notice to the Agency as soon as possible of any planned physical alterations or additions to the permitted facility.
Notice is required when:
(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source pursuant to 40 CFR 122.29 (b); or
(2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements pursuant to 40 CFR 122.42 (a)(1).
(3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
(b) **Anticipated noncompliance.** The permittee shall give advance notice to the Agency of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
(c) **Transfers.** This permit is not transferable to any person except after notice to the Agency.
(d) **Compliance schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
(e) **Monitoring reports.** Monitoring results shall be reported at the intervals specified elsewhere in this permit.
(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR).

(2) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

(3) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Agency in the permit.

(f) **Twenty-four hour reporting**. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24-hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and time; and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The following shall be included as information which must be reported within 24-hours:

(1) Any unanticipated bypass which exceeds any effluent limitation in the permit.

(2) Any upset which exceeds any effluent limitation in the permit.

(3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Agency in the permit or any pollutant which may endanger health or the environment.

The Agency may waive the written report on a case-by-case basis if the oral report has been received within 24-hours.

(g) **Other noncompliance**. The permittee shall report all instances of noncompliance not reported under paragraphs (12) (d), (e), or (f), at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (12) (f).

(h) **Other information**. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Agency, it shall promptly submit such facts or information.

(13) **Bypass**.

(a) Definitions.

(1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

(2) Severe property damage means 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.

(b) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (13)(c) and (13)(d).

(c) Notice.

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph (12)(f) (24-hour notice).

(d) Prohibition of bypass.

(1) Bypass is prohibited, and the Agency may take enforcement action against a permittee for bypass, unless:

(i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(ii) 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 back-up 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

(iii) The permittee submitted notices as required under paragraph (13)(c).

(2) The Agency may approve an anticipated bypass, after considering its adverse effects, if the Agency determines that it will meet the three conditions listed above in paragraph (13)(d)(1).

(14) **Upset**.

(a) Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. 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.

(b) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (14)(c) are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(c) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;

(2) The permitted facility was at the time being properly operated; and

(3) The permittee submitted notice of the upset as required in paragraph (12)(f)(2) (24-hour notice).

(4) The permittee complied with any remedial measures required under paragraph (4).

(d) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

(15) **Transfer of permits.** Permits may be transferred by modification or automatic transfer as described below:
  (a) Transfers by modification. Except as provided in paragraph (b), a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued pursuant to 40 CFR 122.62 (b) (2), or a minor modification made pursuant to 40 CFR 122.63 (d), to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act.
  (b) Automatic transfers. As an alternative to transfers under paragraph (a), any NPDES permit may be automatically transferred to a new permittee if:
    (1) The current permittee notifies the Agency at least 30 days in advance of the proposed transfer date;
    (2) The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage and liability between the existing and new permittees; and
    (3) The Agency does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement.

(16) All manufacturing, commercial, mining, and silvicultural dischargers must notify the Agency as soon as they know or have reason to believe:
  (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant identified under Section 307 of the Clean Water Act which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
    (1) One hundred micrograms per liter (100 ug/l);
    (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6 dinitrophenol; and one milligram per liter (1 mg/l) for antimony.
    (3) Five (5) times the maximum concentration value reported for that pollutant in the NPDES permit application; or
    (4) The level established by the Agency in this permit.
  (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the NPDES permit application.

(17) All Publicly Owned Treatment Works (POTWs) must provide adequate notice to the Agency of the following:
  (a) Any new introduction of pollutants into that POTW from an indirect discharge which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and
  (b) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
  (c) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

(18) If the permit is issued to a publicly owned or publicly regulated treatment works, the permittee shall require any industrial user of such treatment works to comply with federal requirements concerning:
  (a) User charges pursuant to Section 204 (b) of the Clean Water Act, and applicable regulations appearing in 40 CFR 35;
  (b) Toxic pollutant effluent standards and pretreatment standards pursuant to Section 307 of the Clean Water Act; and
  (c) Inspection, monitoring and entry pursuant to Section 308 of the Clean Water Act.

(19) If an applicable standard or limitation is promulgated under Section 301(b)(2)(C) and (D), 304(b)(2), or 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in the permit, or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked, and reissued to conform to that effluent standard or limitation.

(20) Any authorization to construct issued to the permittee pursuant to 35 Ill. Adm. Code 309.154 is hereby incorporated by reference as a condition of this permit.

(21) The permittee shall not make any false statement, representation or certification in any application, record, report, plan or other document submitted to the Agency or the USEPA, or required to be maintained under this permit.

(22) The Clean Water Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act is subject to a civil penalty not to exceed $25,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one year, or both.
Additional penalties for violating these sections of the Clean Water Act are identified in 40 CFR 122.41 (a)(2) and (3).

(23) The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

(24) The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

(25) Collected screening, slurries, sludges, and other solids shall be disposed of in such a manner as to prevent entry of those wastes (or runoff from the wastes) into waters of the State. The proper authorization for such disposal shall be obtained from the Agency and is incorporated as part hereof by reference.

(26) In case of conflict between these standard conditions and any other condition(s) included in this permit, the other condition(s) shall govern.

(27) The permittee shall comply with, in addition to the requirements of the permit, all applicable provisions of 35 Ill. Adm. Code, Subtitle C, Subtitle D, Subtitle E, and all applicable orders of the Board or any court with jurisdiction.

(28) The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit is held invalid, the remaining provisions of this permit shall continue in full force and effect.

(Rev. 7-9-2010 bah)

Appendix B

Duke's Precision I&I Microdetection Study

PROBLEM STATEMENT

PURPOSE OF STUDY

The City of Plano is looking to determine areas of inflow and infiltration within the city limits. The city has experienced capacity issues in the sewer lines as well as increased flows at the wastewater treatment plant.

METHODOLOGY

The project was broken out into two distinct studies. Phase I study consisted of placing iTrackers in key outfall areas of the subject area for the period canvassing June 1, 2020 - July 27, 2020. Phase II iTracker were placed on July 28, 2020 with the final data pull and removal on August 27, 2020.

Our algorithms use population estimates and regular level patterns to calculate the average typical day's base flow. The iTracking software uses the sewer branch structure with upstream and downstream associations to determine where infiltration is occurring and to estimate the likely impact on system performance.

We used a standard deviation model of 2 times to record the most common occurrences of I/I and to eliminate outliers that may otherwise skew normalized data. The results of this study are contained herein these deliverables.

Installation Dates:

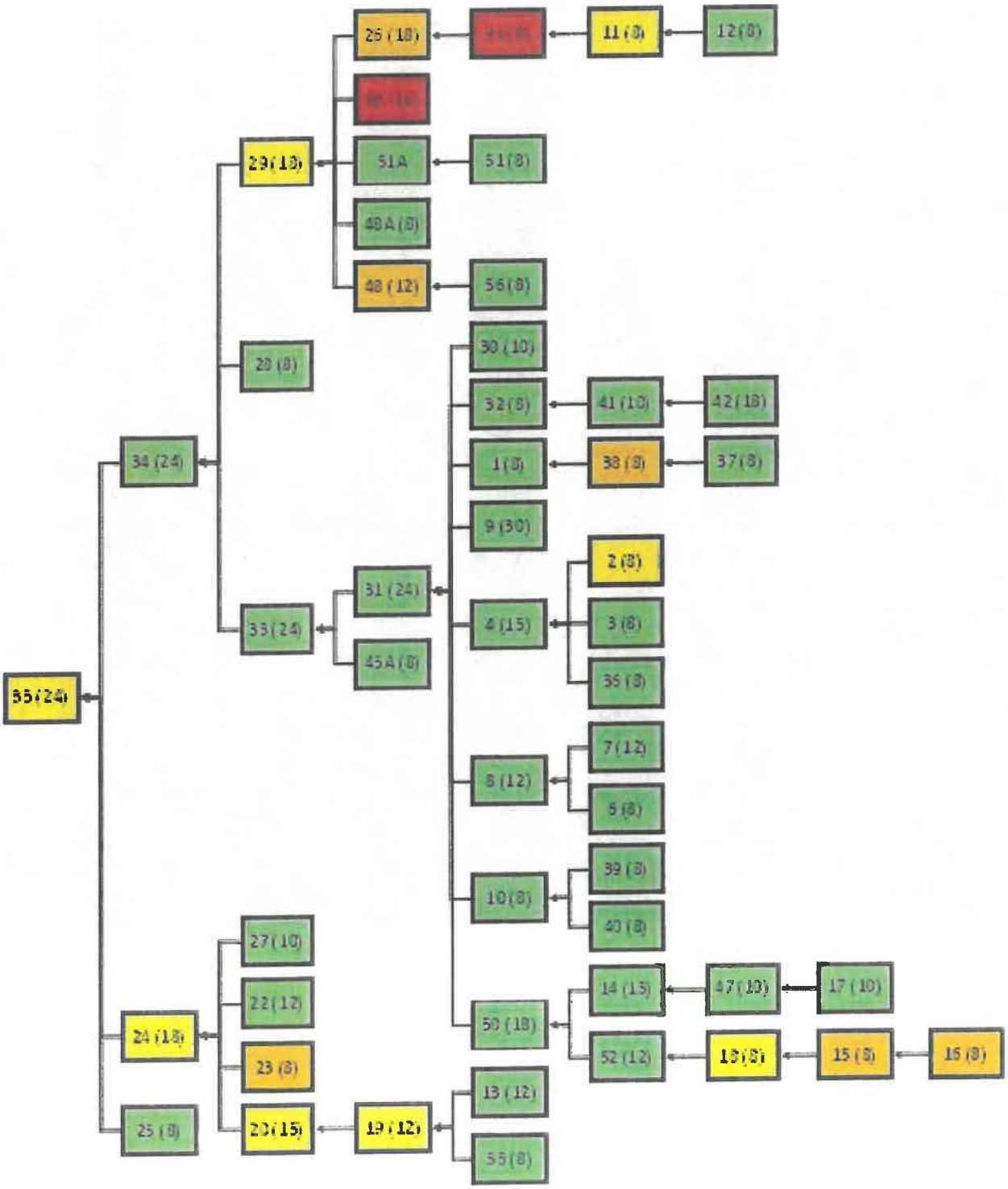
Initial Install: June 1, 2020
Data Pull #1: July 27, 2020
Data Pull #2 and Removal: August 27, 2020

Subject Area:

Plano, IL

iTracker Study- Study Final Results

DUKE'S
ROOTED IN INNOVATION™



Plano, IL

iTracker Study- Phase II

DUKE'S
ROOTED IN INNOVATION

Manhole ID	Pipe Size	Individual Population	Cummulative Population	Minimum Water Level (in)	Average Water Level (in)	Peak Level (in)	Total Observations in Study	Standard Capacity (in)	Difference Average to Peak (in)	Percent Observed Over Standard Capacity	Surcharged	Over Standard Capacity	25% Over Capacity	I&I	Final Rating
35	24	20	1587	5.38	6.29	7.21	2,006	8.00	0.92	0.00%					Good
24	18	160	650	1.35	2.17	3.81	2,010	6.00	1.64	0.00%					Good
23	8	50	50	0.70	1.12	3.60	2,022	2.67	2.48	0.10%		✓		✓	Fair
22	12	15	15	1.59	2.04	3.15	2,012	4.00	1.11	0.00%					Good
20	15	70	425	0.75	1.21	2.03	2,766	5.00	0.82	0.00%					Good
19	12	80	355	0.91	1.69	3.38	2,041	4.00	1.69	4.95%					Good
55	8	275	275	0.52	0.85	1.93	2,032	2.67	1.08	0.00%					Good
33	24	30	632	2.36	3.31	4.53	2,570	8.00	1.22	0.00%					Good
45A	8	32	32	0.00	0.62	3.27	2,583	2.67	2.65	0.04%		✓			Good
32	8	30	45	0.32	1.08	2.14	2,590	2.67	1.06	0.00%					Good
41	10	5	15	0.49	0.79	2.08	2,595	3.33	1.29	0.00%					Good
42	8	10	10	1.36	1.78	3.55	2,596	2.67	1.77	1.12%		✓			Good
10	8	75	155	0.60	1.50	2.86	2,795	2.67	1.36	0.14%		✓			Good
39	8	20	20	0.43	1.00	2.81	2,794	2.67	1.81	0.04%		✓			Good
40	8	60	60	0.43	0.93	1.57	2,799	2.67	0.64	0.00%					Good
50	18	55	280	0.68	1.44	2.11	2,790	6.00	0.67	0.00%					Good
47	10	75	75	0.28	0.73	1.64	2,785	3.33	0.91	0.00%					Good
52	12	80	155	0.83	1.94	3.41	2,775	4.00	1.47	0.00%					Good
16	8	75	75	0.18	0.99	2.27	2,785	2.67	1.28	0.00%					Good
1	8	5	15	0.43	0.91	2.35	2,876	2.67	1.44	0.00%					Good
38	8	5	10	0.00	2.22	4.50	2,877	2.67	2.28	32.19%		✓	✓	✓	Moderate
37	8	5	5	0.00	0.34	1.26	2,878	2.67	0.92	0.00%					Good
8	12	10	15	0.00	0.64	1.84	2,801	4.00	1.20	0.00%					Good
6	8	5	5	0.00	0.25	1.40	2,803	2.67	1.15	0.00%					Good
36	8	35	35	0.92	1.39	2.67	2,879	2.67	1.28	0.03%		✓			Good
2	8	25	25	0.09	0.86	3.24	2,879	2.67	2.38	0.03%		✓			Good
29	18	5	240	0.19	0.93	1.66	2,564	6.00	0.73	0.00%					Good
46	12	25	25	0.61	17.55	24.38	2,574	4.00	6.83	92.04%	✓		✓		Severe
51A	10	15	35	0.47	0.96	2.34	2,012	3.33	1.38	0.00%					Good
51	8	20	20	0.92	1.63	3.39	2,765	2.67	1.76	0.14%		✓			Good
48A	8	15	15	0.00	0.37	1.13	2,012	2.67	0.76	0.00%					Good
48	12	120	160	1.10	5.12	17.22	2,776	4.00	12.10	47.08%	✓		✓		Moderate
56	8	40	40	0.24	0.58	1.45	2,779	2.67	0.87	0.00%					Good
28	8	45	45	0.00	0.78	1.60	2,568	2.67	0.82	0.00%					Good

Plano, IL

iTracker Study- Phase II Study Area Results

DUKE'S
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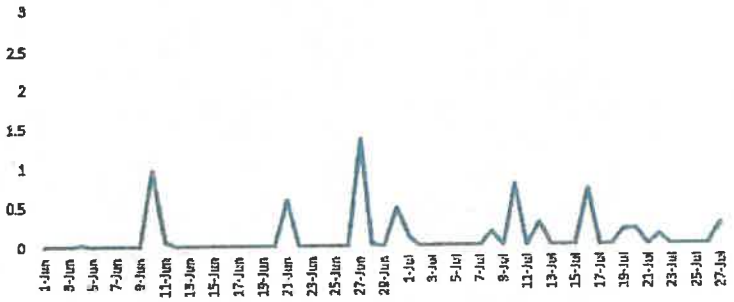
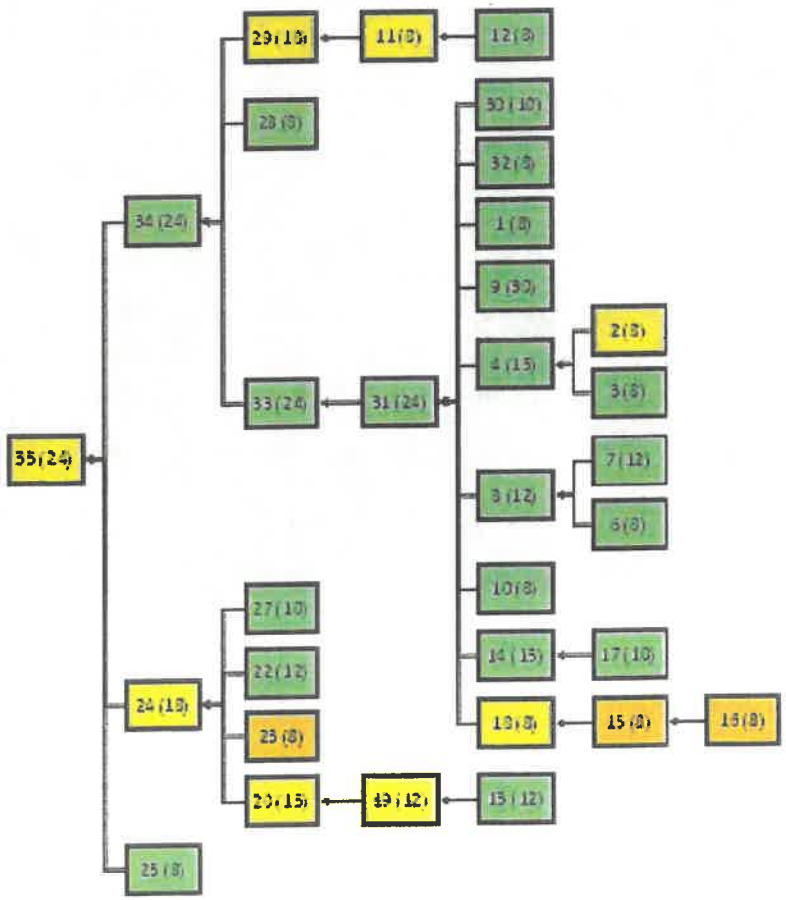
Aurora Municipal Airport

Number of Rain Days	Average Rain Fall	Average Wet Period	Heaviest Rainfall in a Day
17 Days	0.38 inches	30%	1.37 inches

Rain (in) JUN 1 THROUGH JUL 27



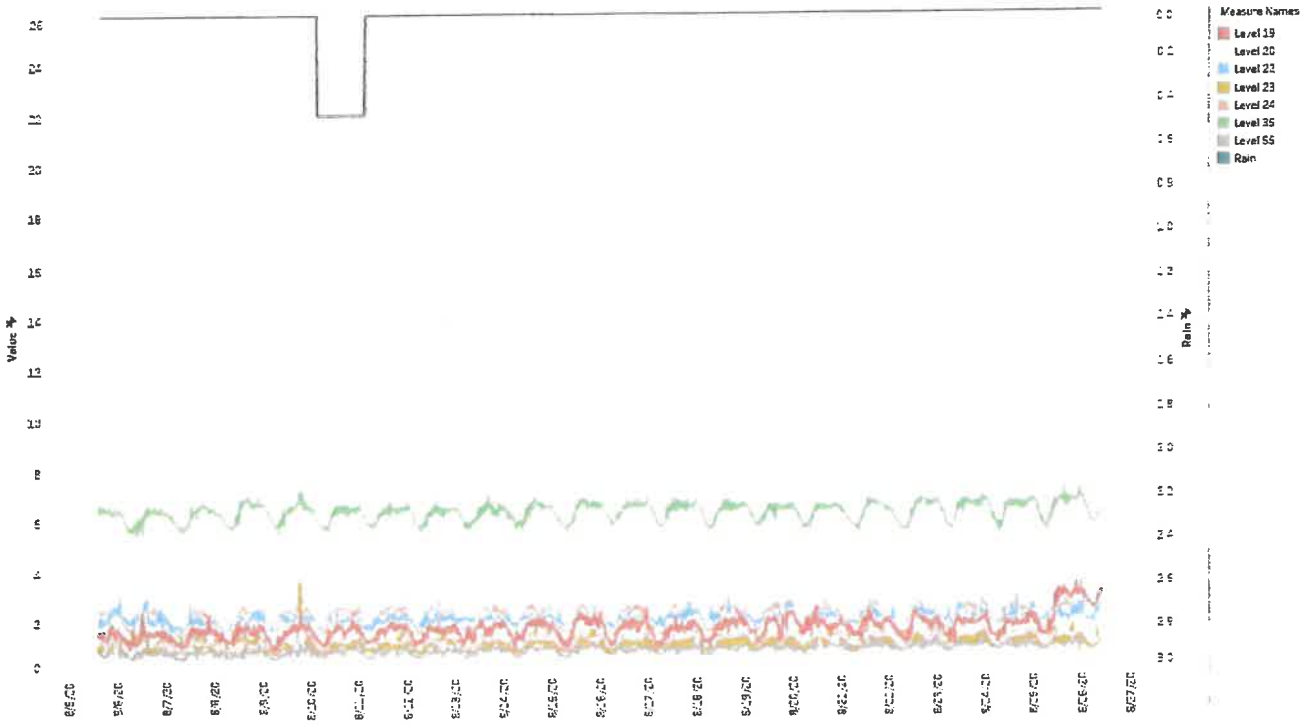


Phase I Study Findings:

Phase I consisted of iTracker placement at various points along the subject area. Major rain events (> 1 inch) occurred on two occasions during this study. Results from this iTracker study found significant issues evident upstream of manholes 26, 21, 23,15 and 16. Phase II iTrackers were left at manholes 35, 24, 23, 22, 20, 19, 33, 32, 10, 16, 1, 8, 6, 2, 29, and 28 as controls with additional installations at manholes 55, 45A, 41, 42, 39, 40, 50, 47, 52, 38, 37, 36, 46, 51A, 51, 48A, 48 and 56.

Plano, IL

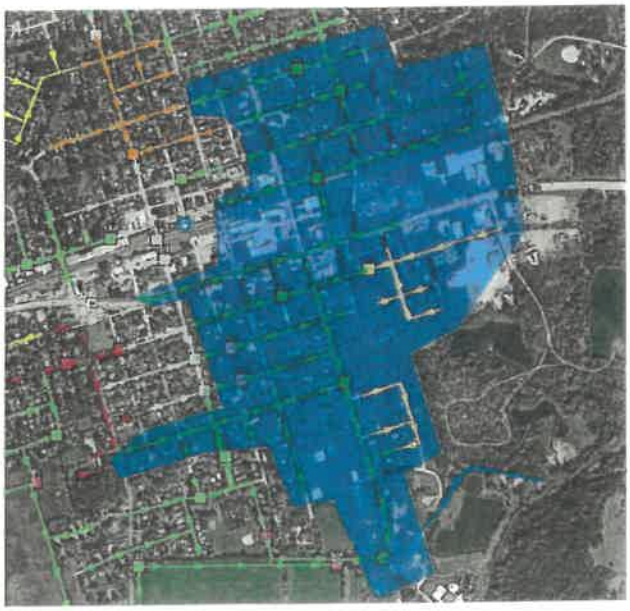
iTracker Study- Phase II- Endpoint Connection Analysis

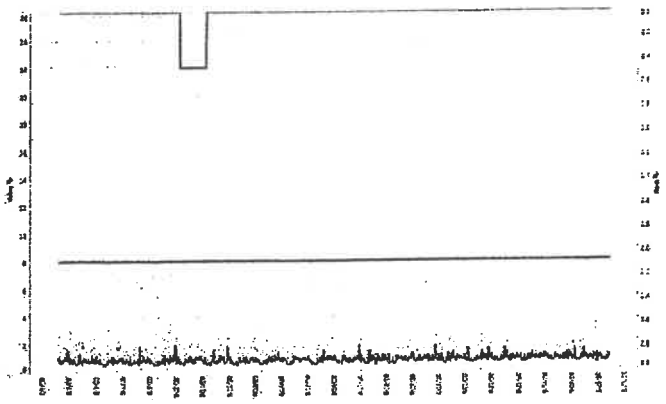


Endpoint Connection Analysis at Manhole 35 (upstream to Manhole 55)

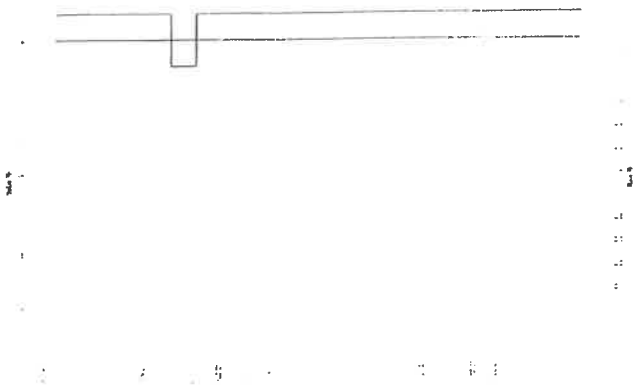
Review of the diurnal patterns immediately surrounding rain events. There were no significant rain events during this phase.

Date Range: 8/5/2020 - 8/27/2020

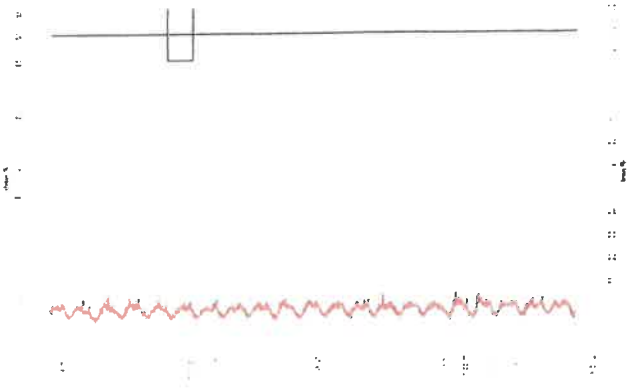




The pipe segment measured at manhole 55 does not show a response to the minor rain events during this phase.

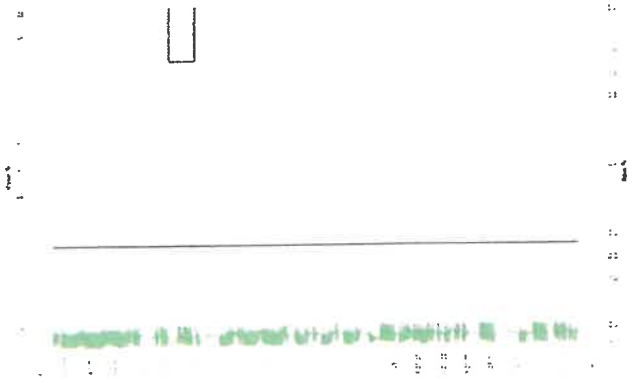


The pipe segment measured at manhole 35 does not show a response to the minor rain events during this phase.

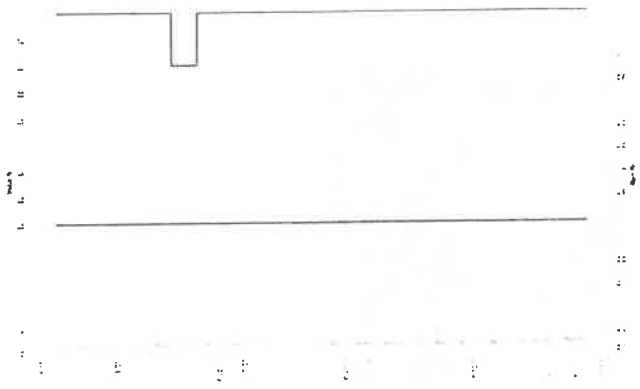


The pipe segment measured at manhole 33 does not show a response to the minor rain events during this phase.

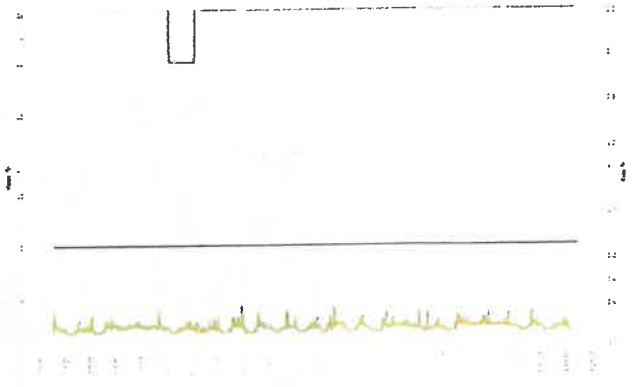
The pipe segment measured at manhole 45A does not show a response to the minor rain events during this phase.



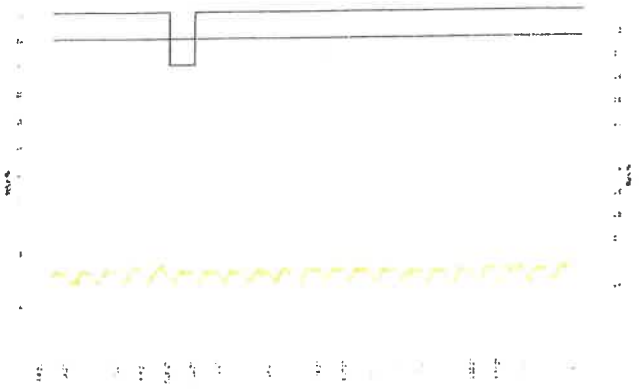
The pipe segment measured at manhole 32 does not show a response to the minor rain events during this phase.



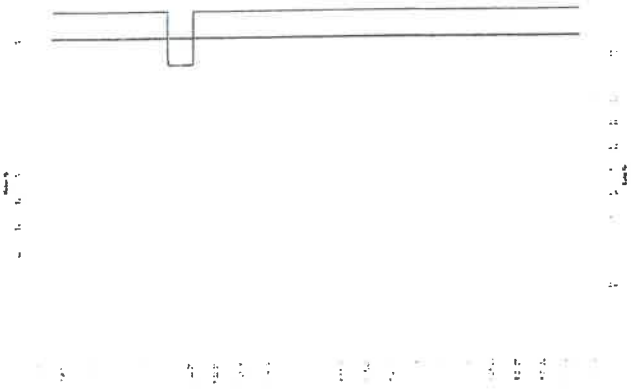
The pipe segment measured at manhole 41 does not show a response to the minor rain events during this phase.



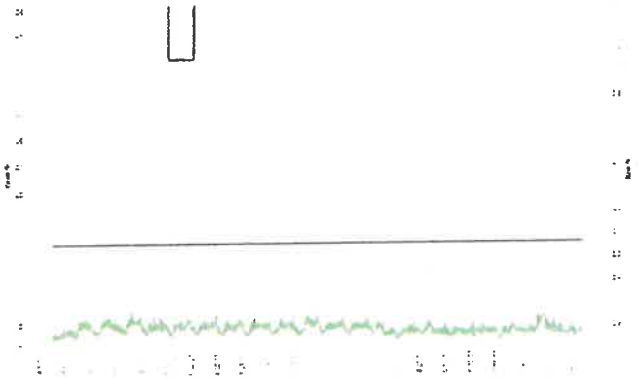
The pipe segment measured at manhole 42 does not show a response to the minor rain events during this phase.



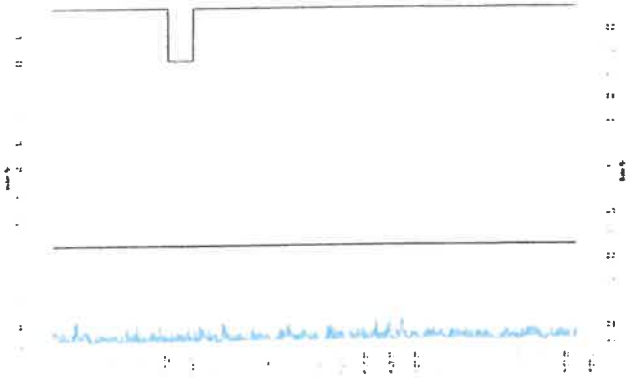
The pipe segment measured at manhole 35 does not show a response to the minor rain events during this phase.



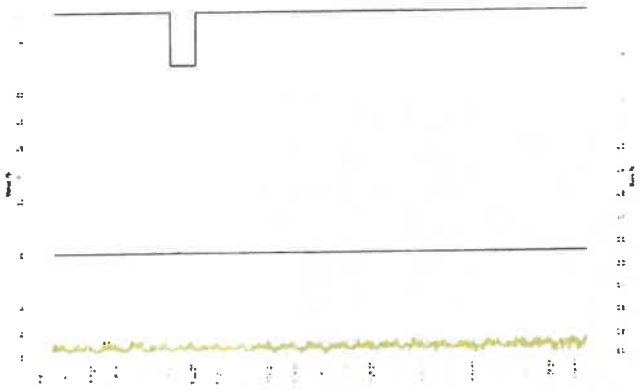
The pipe segment measured at manhole 33 does not show a response to the minor rain events during this phase.



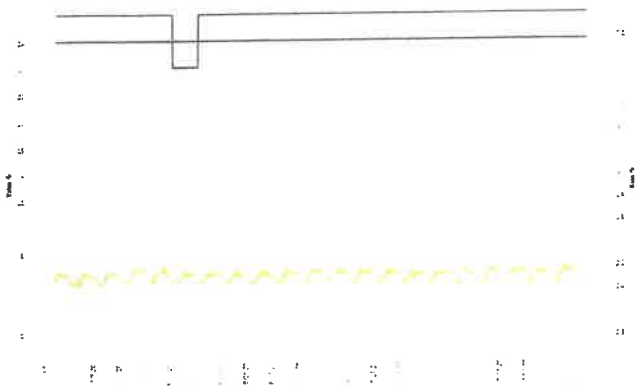
The pipe segment measured at manhole 10 does not show a response to the minor rain events during this phase.



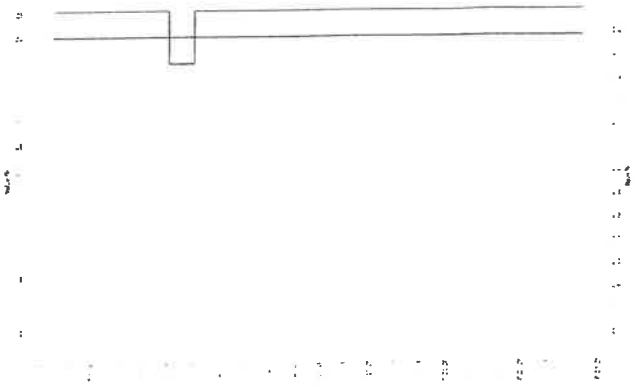
The pipe segment measured at manhole 39 does not show a response to the minor rain events during this phase.



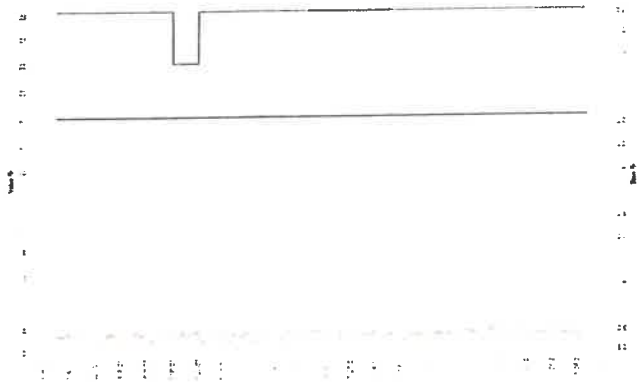
The pipe segment measured at manhole 40 does not show a response to the minor rain events during this phase.



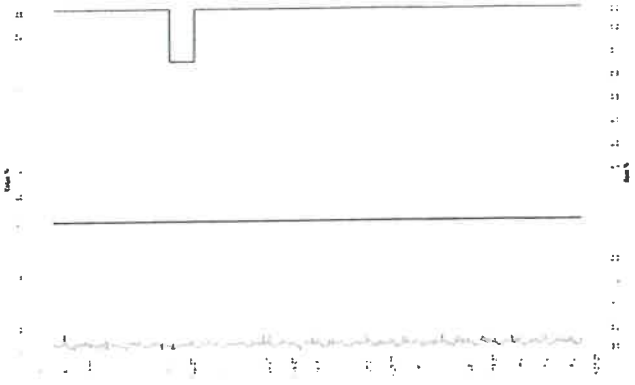
The pipe segment measured at manhole 35 does not show a response to the minor rain events during this phase.



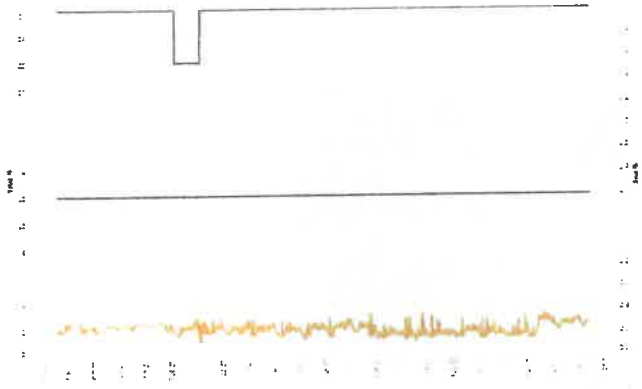
The pipe segment measured at manhole 33 does not show a response to the minor rain events during this phase.



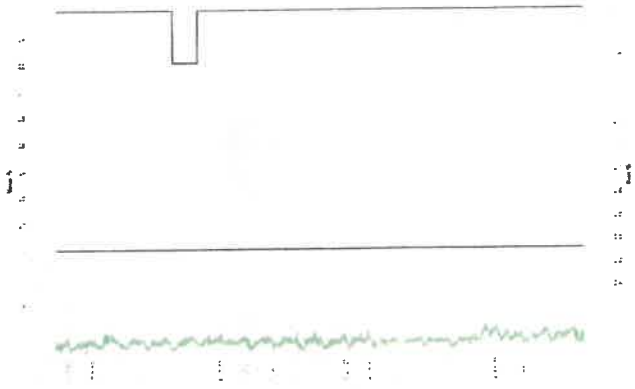
The pipe segment measured at manhole 50 does not show a response to the minor rain events during this phase.



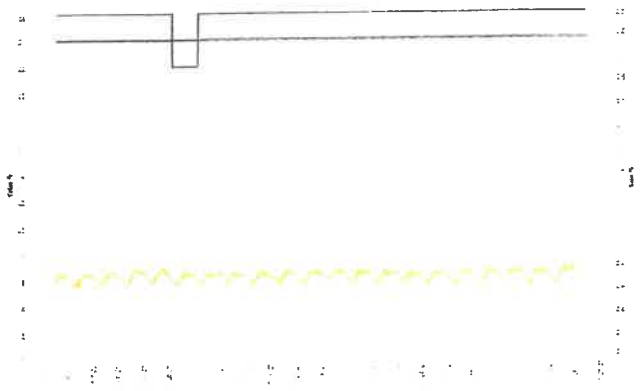
The pipe segment measured at manhole 47 does not show a response to the minor rain events during this phase.



The pipe segment measured at manhole 52 does not show a response to the minor rain events during this phase.

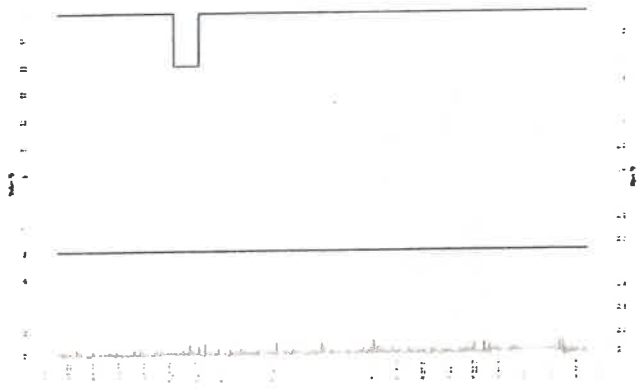


The pipe segment measured at manhole 16 does not show a response to the minor rain events during this phase.

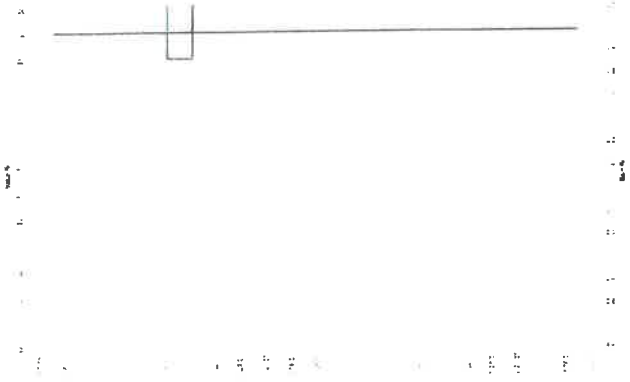


The pipe segment measured at manhole 36 does not show a response to the minor rain events during this phase.

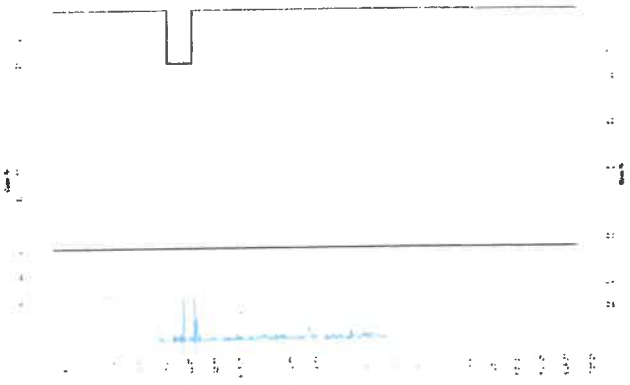
The pipe segment measured at manhole 1 does not show a response to the minor rain events during this phase.



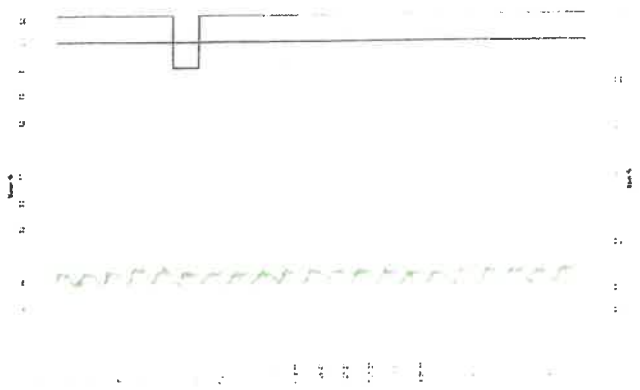
The pipe segment measured at manhole 37 does not show a response to the minor rain events during this phase.



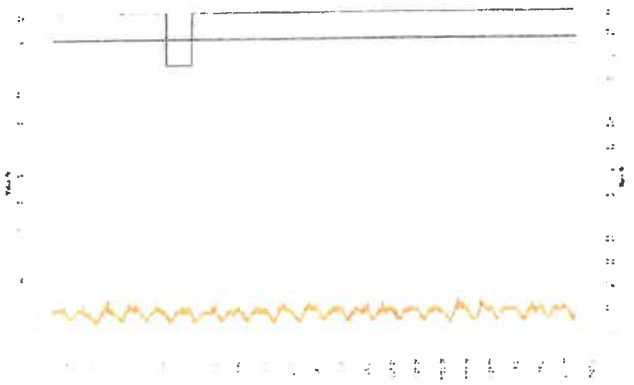
The pipe segment measured at manhole 33 does not show a response to the minor rain events during this phase.



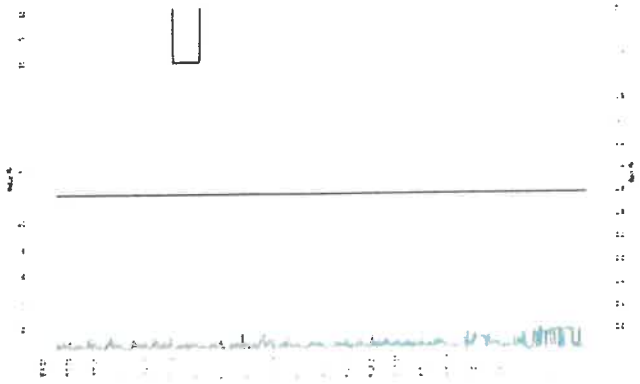
The pipe segment measured at manhole 38 shows a significant response to the minor rain events during this phase. Levels over half the pipe diameter in the first part of the phase may be due to debris or a blockage.



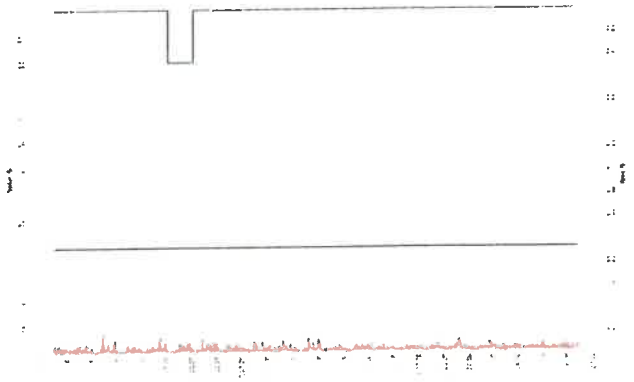
The pipe segment measured at manhole 35 does not show a response to the minor rain events during this phase.



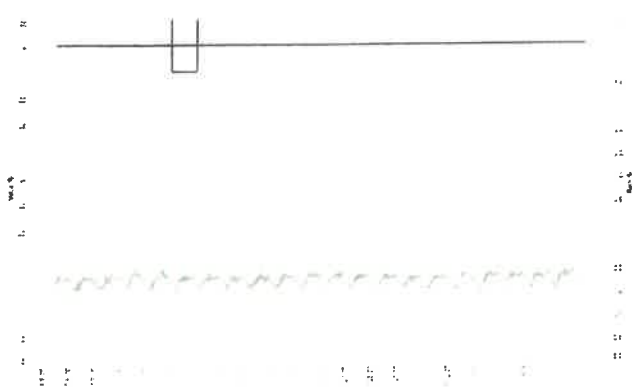
The pipe segment measured at manhole 33 does not show a response to the minor rain events during this phase.



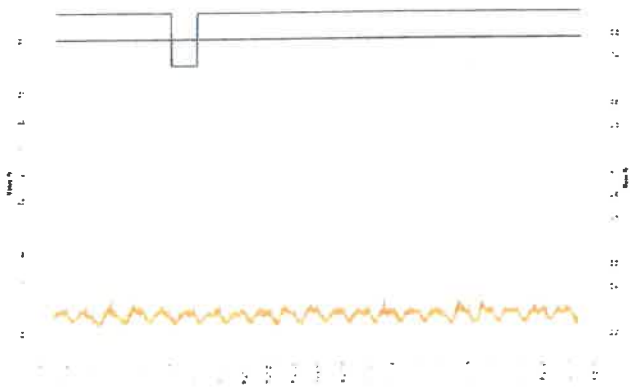
The pipe segment measured at manhole 8 does not show a response to the minor rain events during this phase.



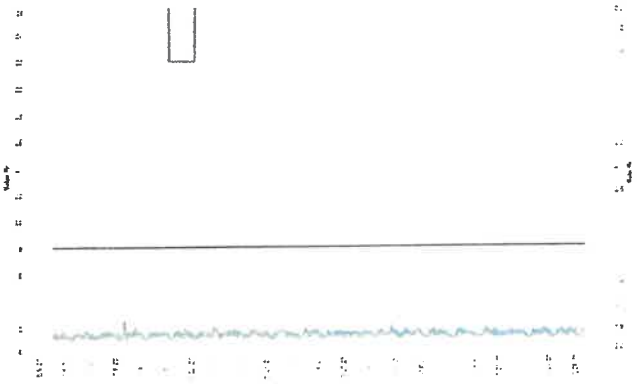
The pipe segment measured at manhole 6 does not show a response to the minor rain events during this phase.



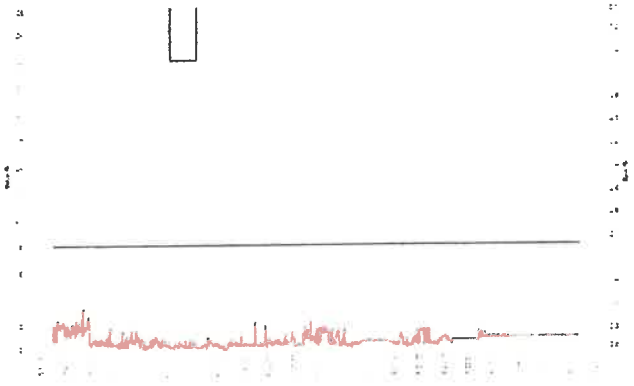
The pipe segment measured at manhole 35 does not show a response to the minor rain events during this phase.



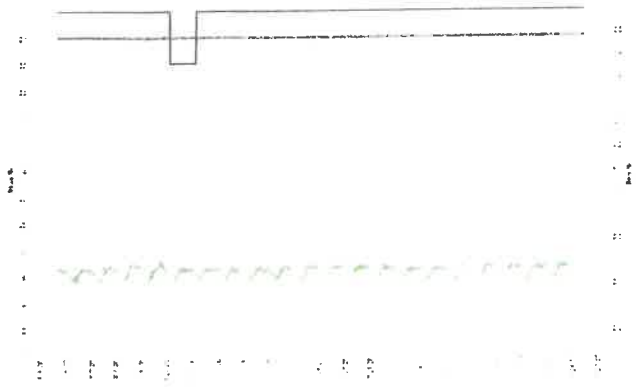
The pipe segment measured at manhole 33 does not show a response to the minor rain events during this phase.



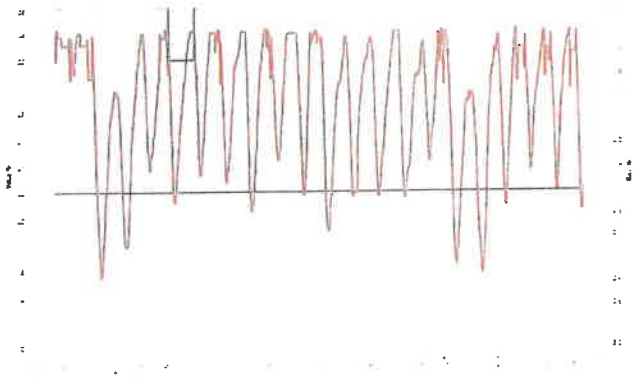
The pipe segment measured at manhole 36 does not show a response to the minor rain events during this phase.



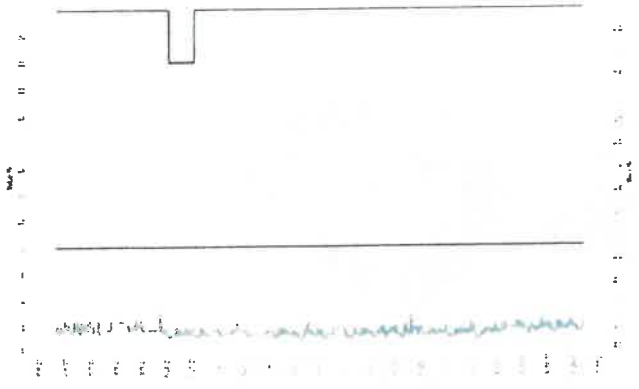
The pipe segment measured at manhole 2 does not show a response to the minor rain events during this phase.



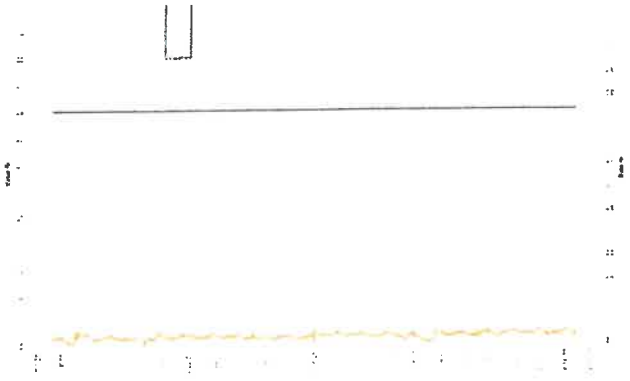
The pipe segment measured at manhole 35 does not show a response to the minor rain events during this phase.



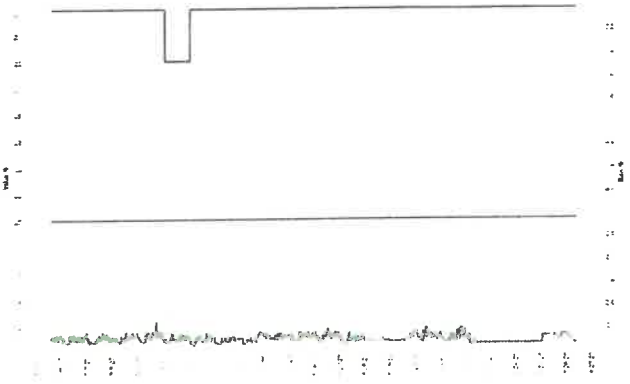
The pipe segment measured at manhole 46 was surcharged for the duration of this phase.



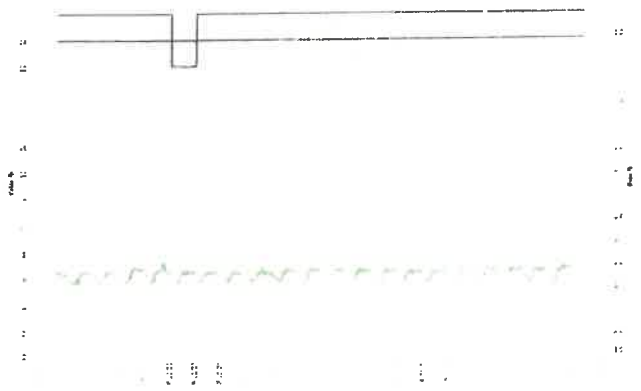
The pipe segment measured at manhole 51 does not show a response to the minor rain events during this phase.



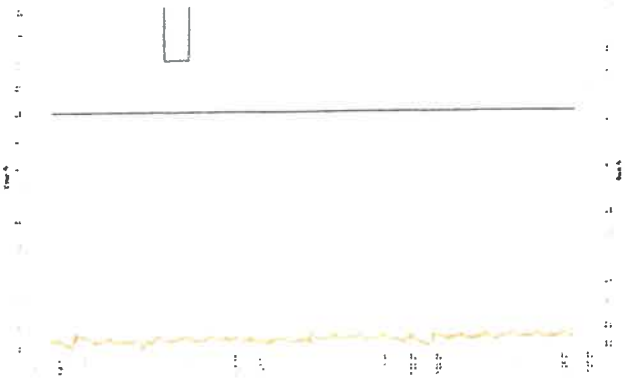
The pipe segment measured at manhole 29 does not show a response to the minor rain events during this phase.



The pipe segment measured at manhole 51A does not show a response to the minor rain events during this phase.

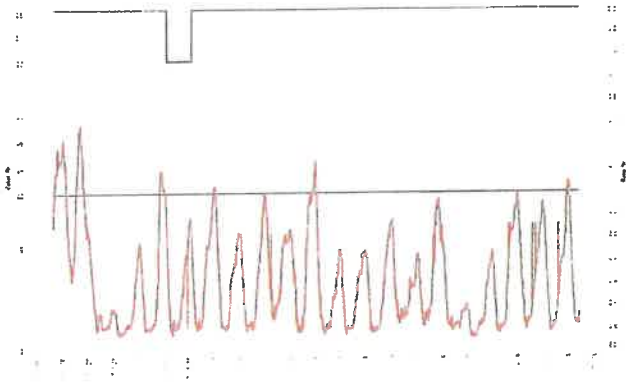


The pipe segment measured at manhole 35 does not show a response to the minor rain events during this phase.

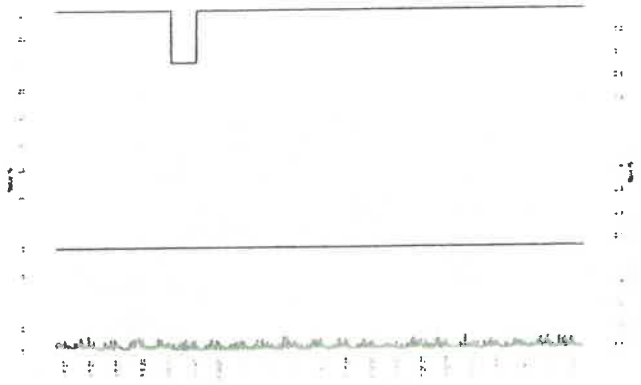


The pipe segment measured at manhole 29 does not show a response to the minor rain events during this phase.

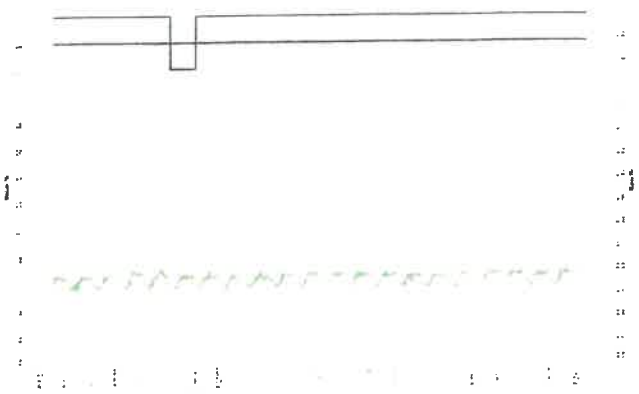
The pipe segment measured at manhole 48A does not show a response to the minor rain events during this phase.



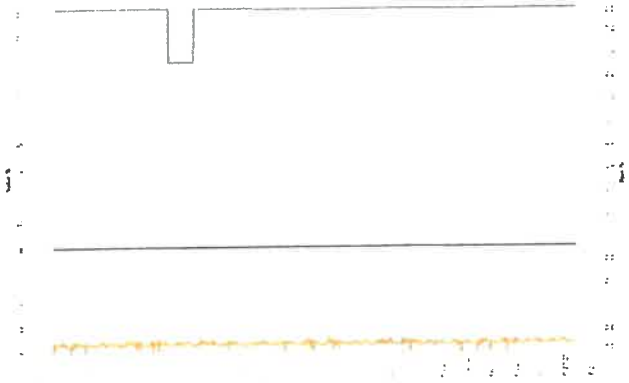
The pipe segment measured at manhole 48A does not show a response to the minor rain events during this phase. The pipe segment did demonstrate surcharging and higher levels due to upstream surcharge condition.



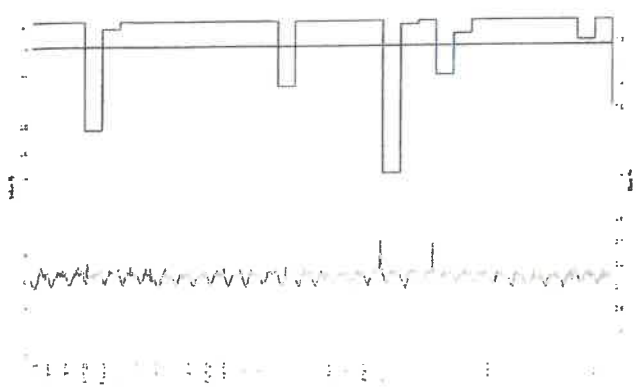
The pipe segment measured at manhole 56 does not show a response to the minor rain events during this phase.



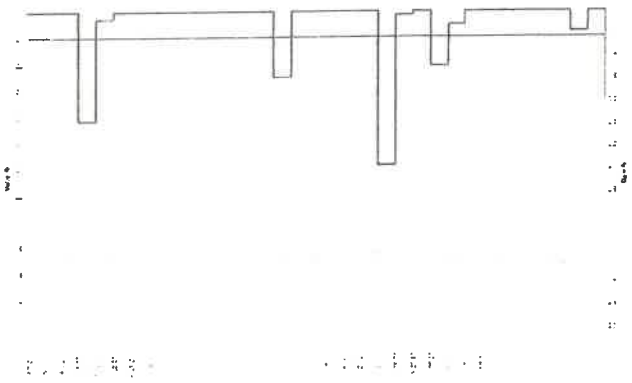
The pipe segment measured at manhole 35 does not show a response to the minor rain events during this phase.



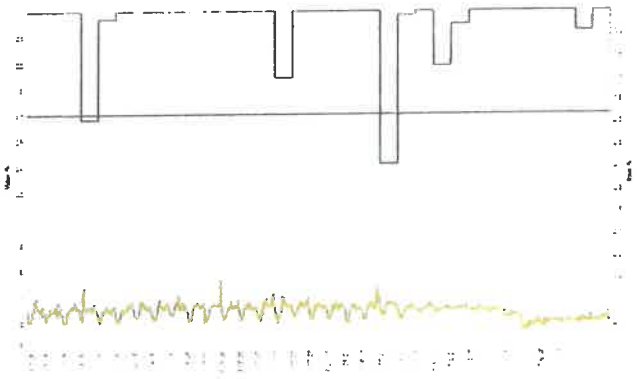
The pipe segment measured at manhole 28 does not show a response to the minor rain events during this phase.



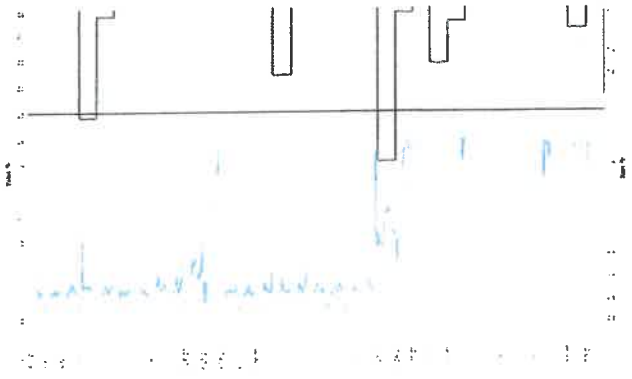
The pipe segment measured at manhole 35 shows minimal response during rain events.



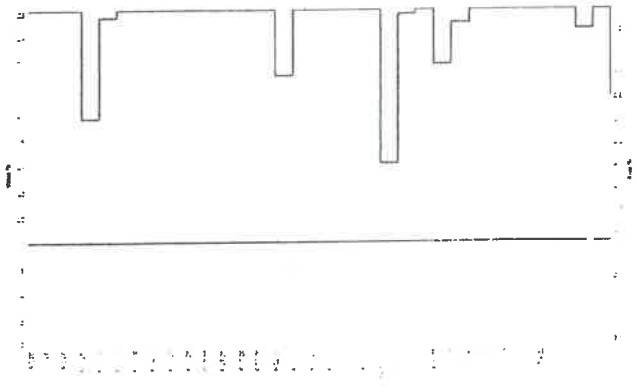
The pipe segment measured at manhole 34 does not show a response during rain events.



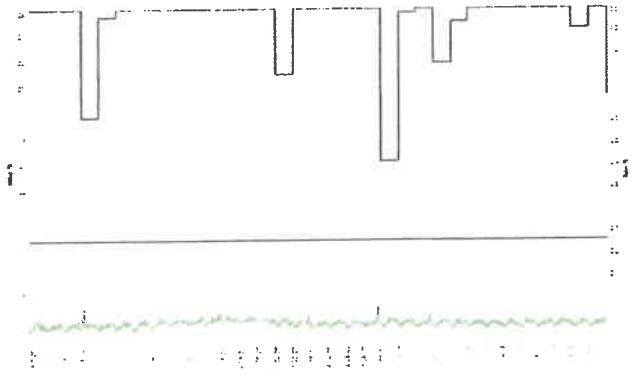
The pipe segment measured at manhole 29 shows minimal response during rain events.



The pipe segment measured at manhole 26 shows an inflow response during rain events with potential debris or downstream blockages causing near surcharge conditions.



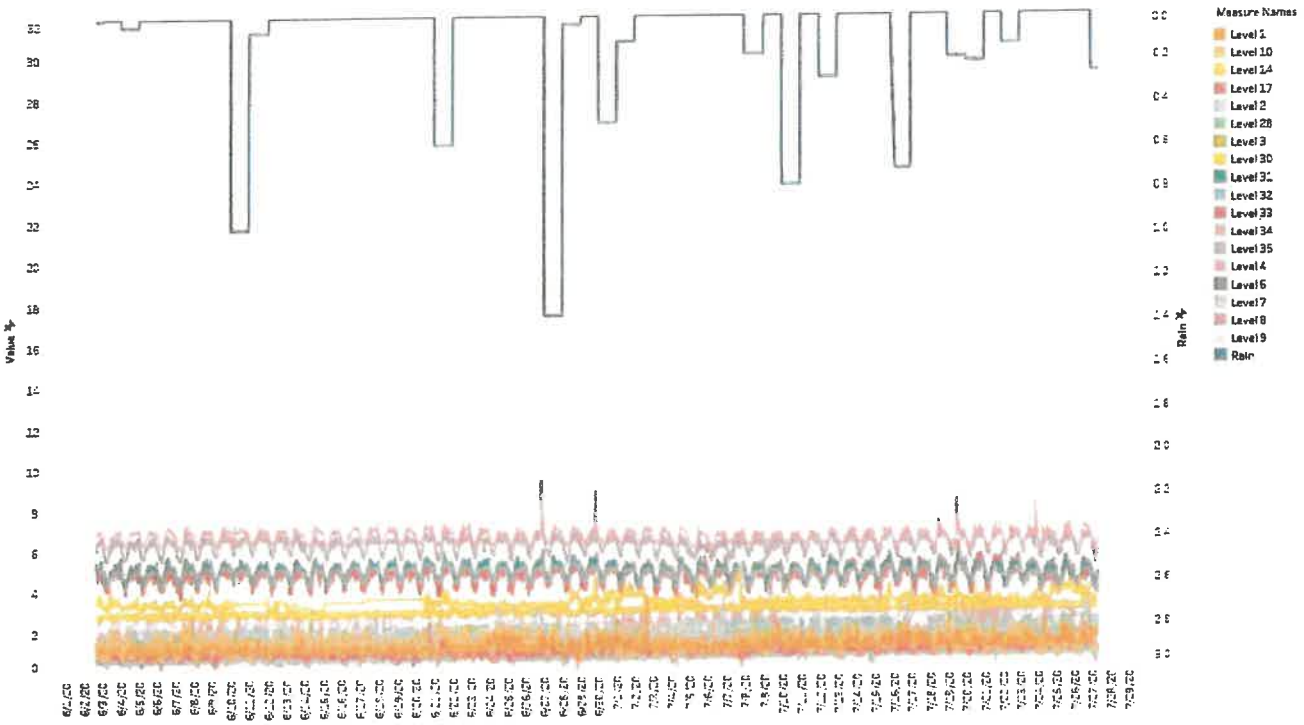
The pipe segment measured at manhole 21 shows an inflow response during rain events with potential downstream blockage causing surcharge conditions.



The pipe segment measured at manhole 11 shows minimal response during rain events.

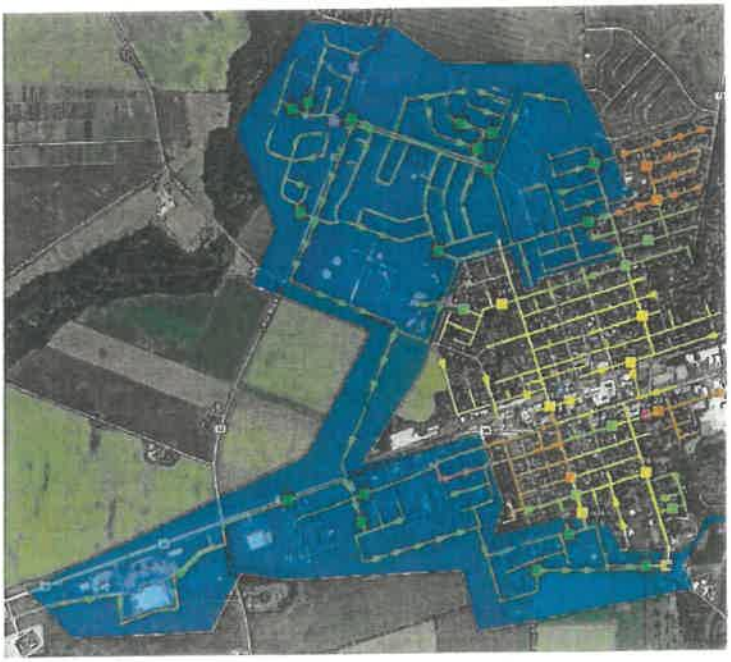
Plano, IL

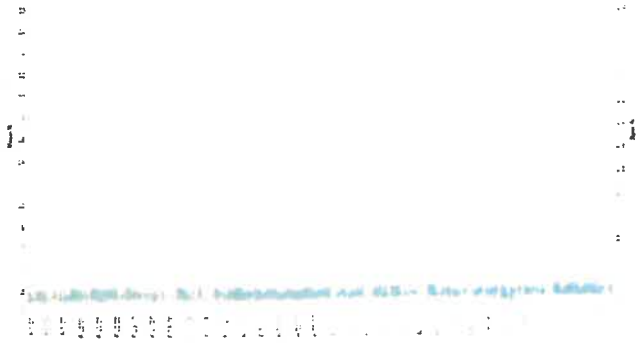
iTracker Study- Phase I- Endpoint Connection Analysis



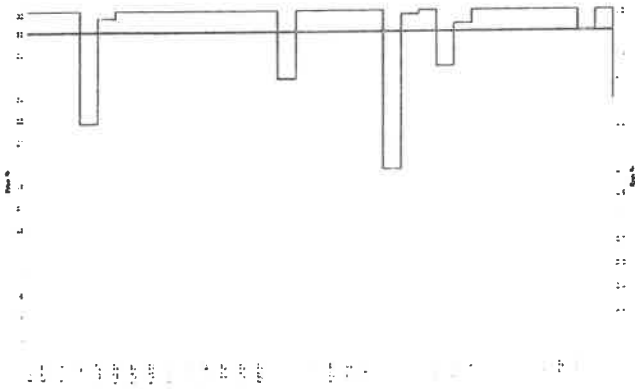
Endpoint Connection Analysis at Manhole 35 (upstream to Manhole 17)

Review of the diurnal patterns immediately surrounding rain events. Date Range: 6/7/2020 - 7/10/2020

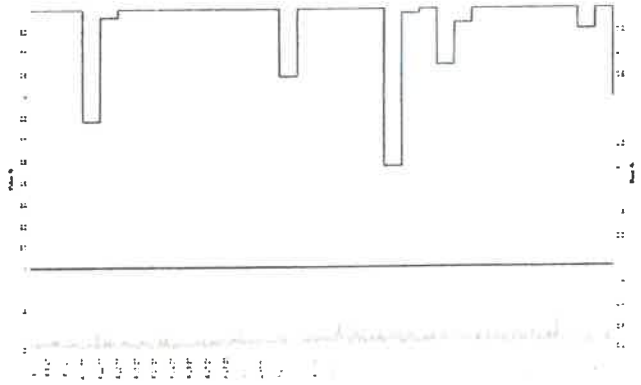




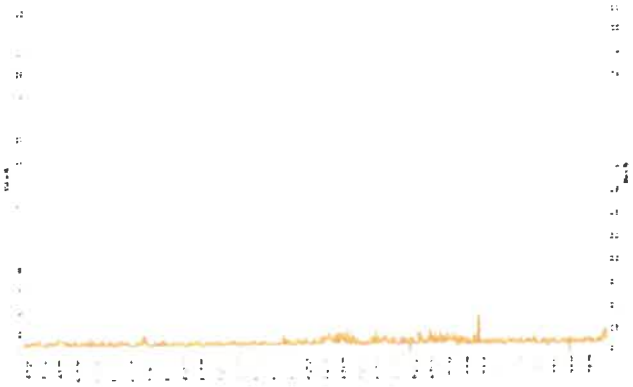
The pipe segment measured at manhole 32 does not show a response during rain events.



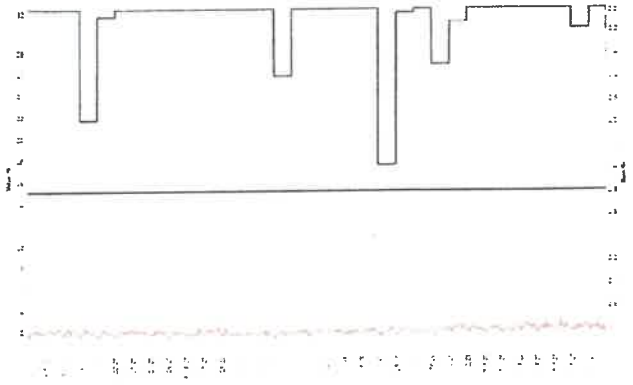
The pipe segment measured at manhole 9 does not show a response during rain events.



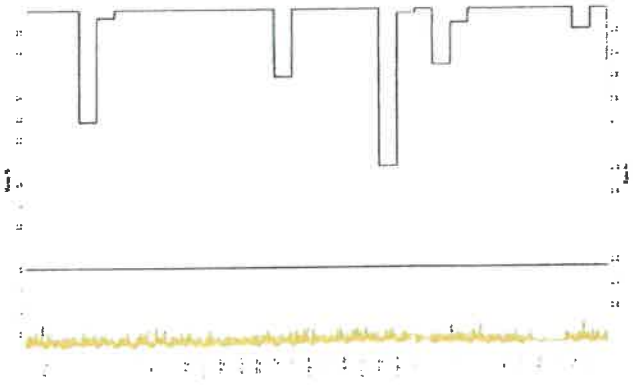
The pipe segment measured at manhole 2 does not show a significant response during rain events.



The pipe segment measured at manhole 1 shows no response during rain events. Level spikes exclusive of rain events may be debris.



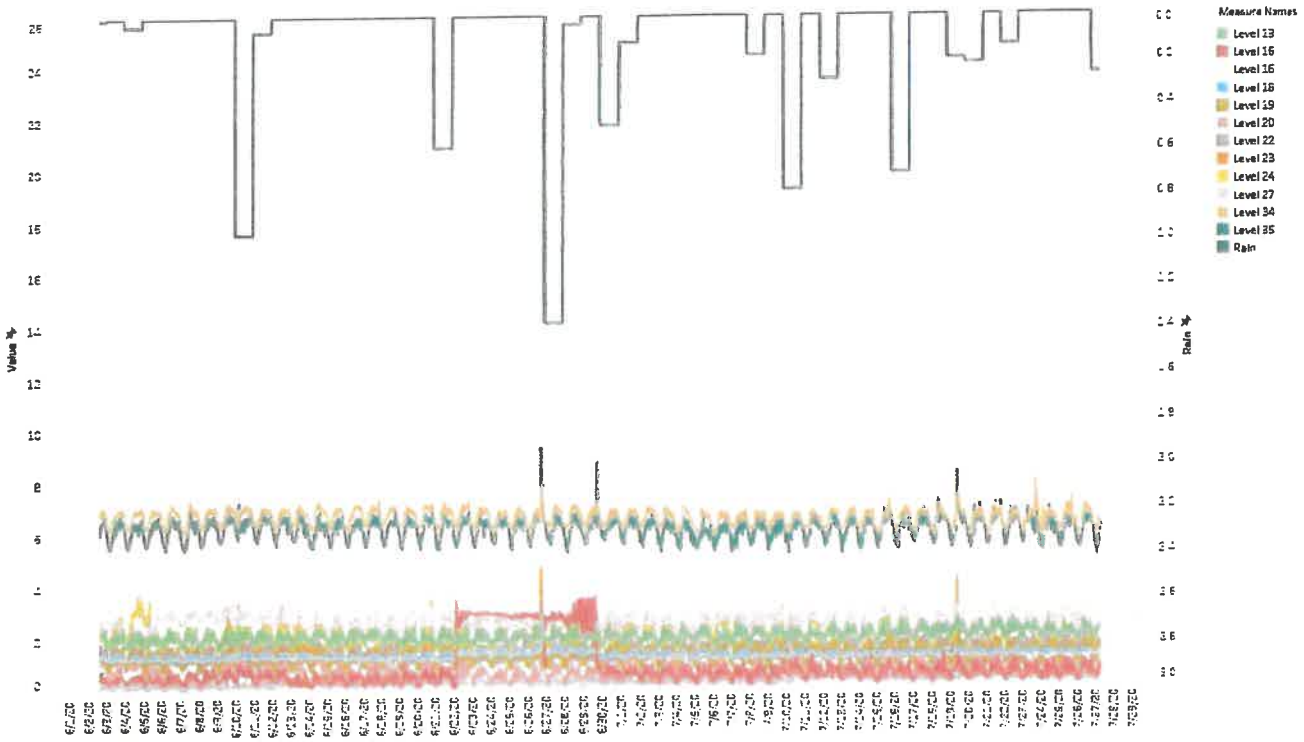
The pipe segment measured at manhole 4 does not show a response during rain events.



The pipe segment measured at manhole 3 does not show a response during rain events.

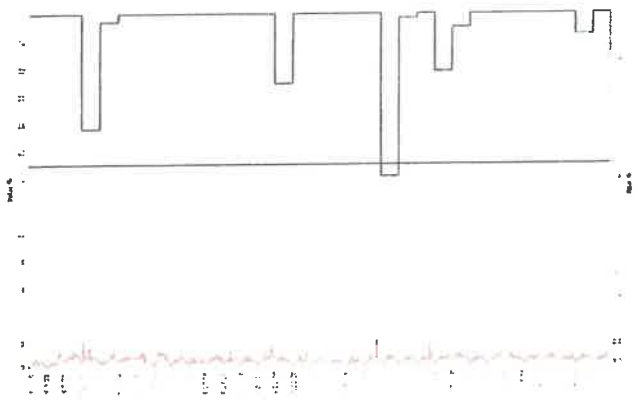
Plano, IL

iTracker Study- Phase I- Endpoint Connection Analysis

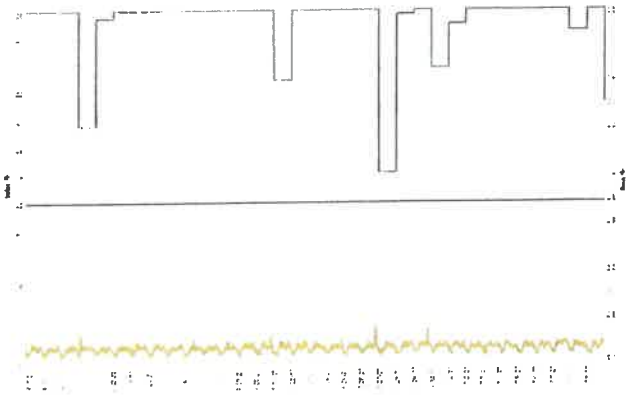


Endpoint Connection Analysis at Manhole 35 (upstream to Manhole 16)

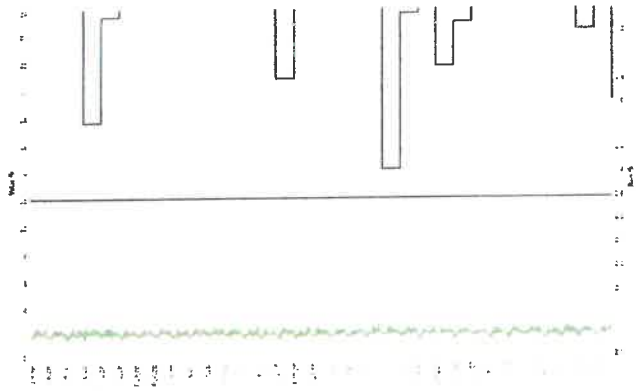
Review of the diurnal patterns immediately surrounding rain events. Date Range: 6/7/2020 - 7/10/2020



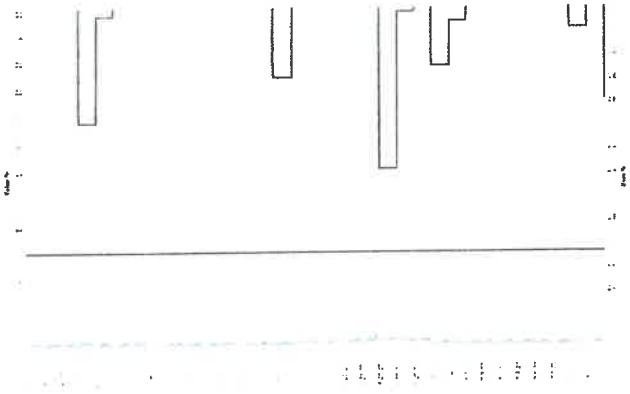
The pipe segment measured at manhole 20 shows minimal response during rain events.



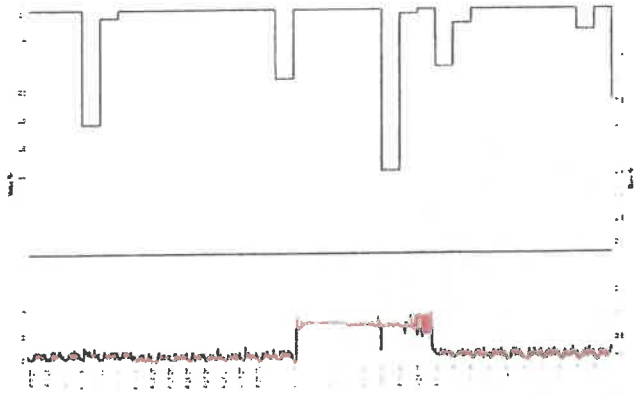
The pipe segment measured at manhole 19 shows minimal response during rain events.



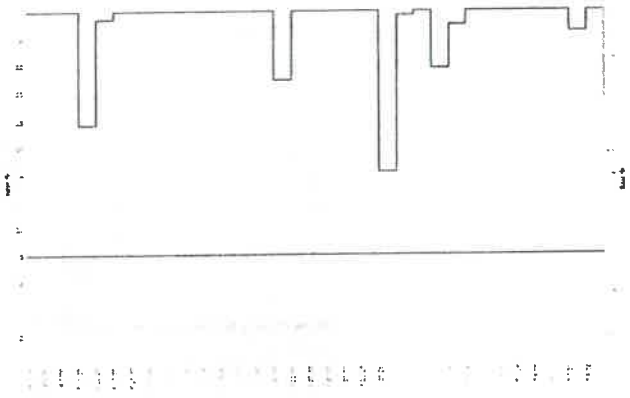
The pipe segment measured at manhole 13 does not show a response to rain events.



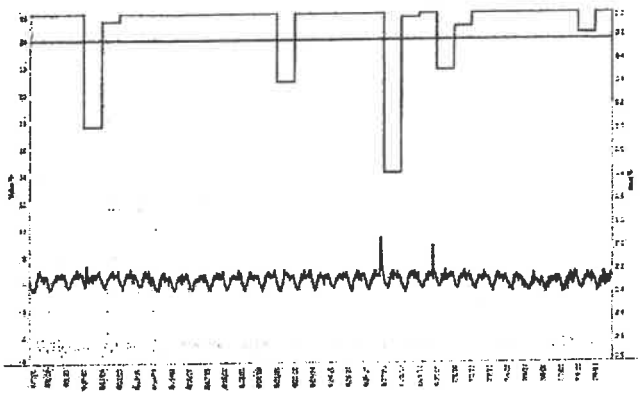
The pipe segment measured at manhole 18 does not show a significant response to rain events.



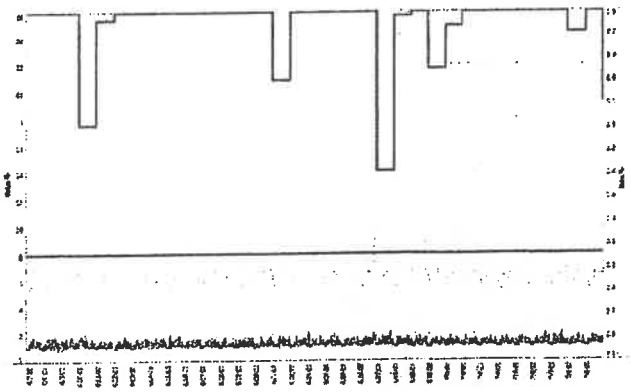
The pipe segment measured at manhole 15 does not show a response during rain events. Increased levels exclusive of rain events indicate a potential downstream blockage.



The pipe segment measured at manhole 16 does not show a response during rain events. Higher levels may be due to possible capacity issues or downstream blockage.



The pipe segment measured at manhole 35 shows minimal response during rain events.



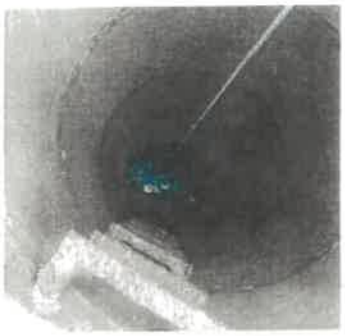
The pipe segment measured at manhole 25 does not show a response to rain events.

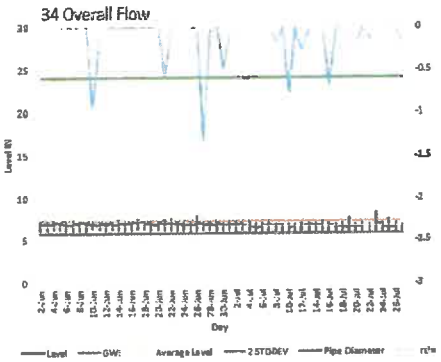
Study Area- iTrackers at final exit point: 35

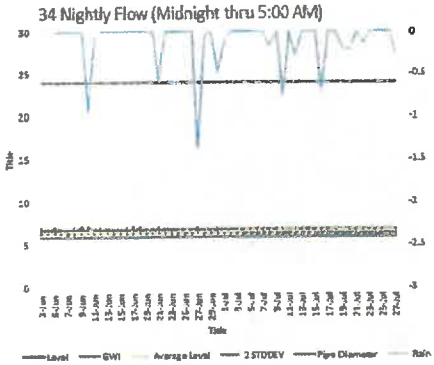
34

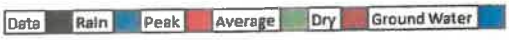
FINAL RATING: GOOD

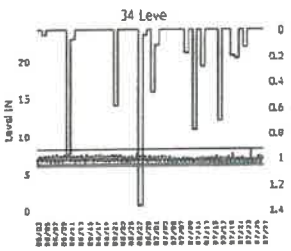
Phase I

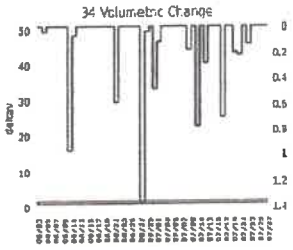


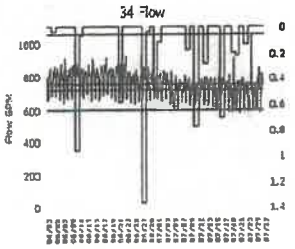












NOTES

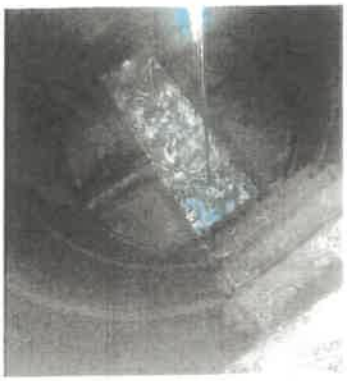
Manhole 34 does not show a response to rain events. With little flow or volume change, the line ending at manhole 34 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted roots in drop.

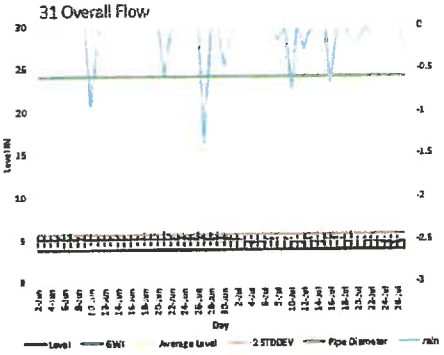
Study Area- iTrackers at final exit point: 35

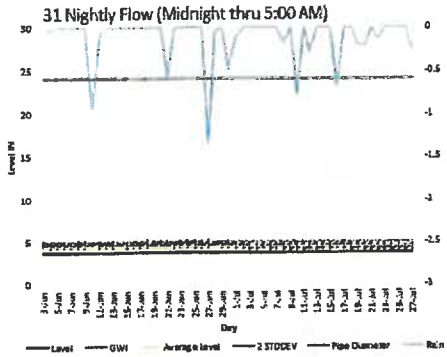
31

FINAL RATING: GOOD

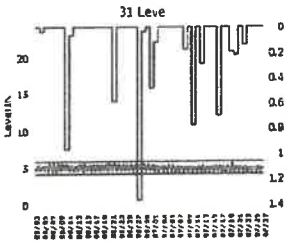
Phase I

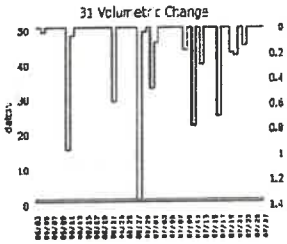


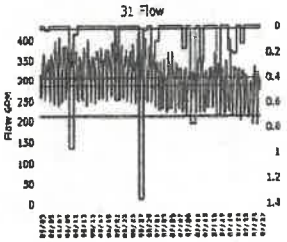




Data | Rain | Peak | Average | Dry | Ground Water







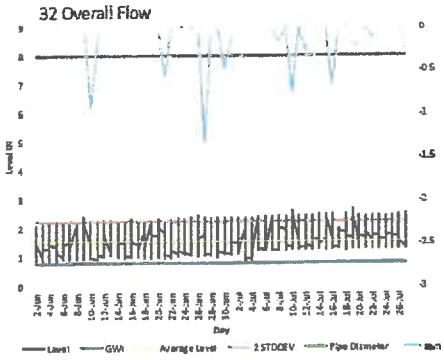
NOTES

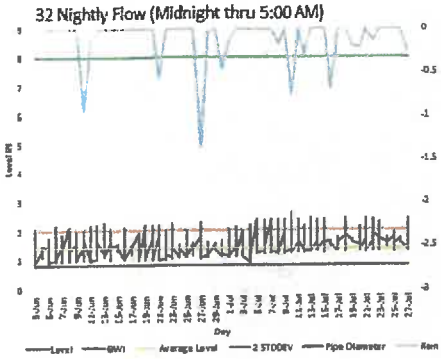
Manhole 31 did not show a response to rain events. With little flow or volume change, the line ending at manhole 31 does not seem to be a contributor to inflow and infiltration issues within this basin.

Study Area- iTrackers at final exit point: 35

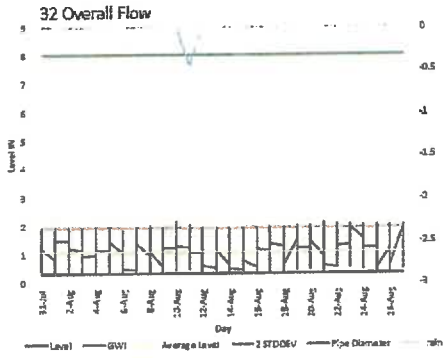
32 **FINAL RATING:** **GOOD**

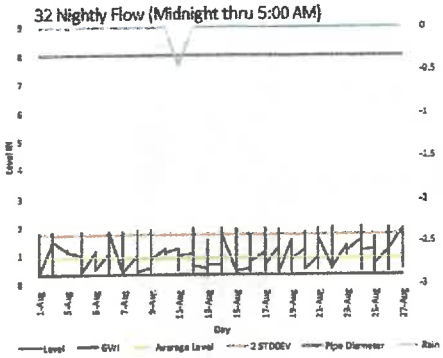
Phase I





Phase II



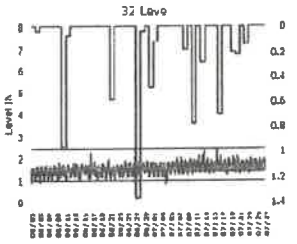


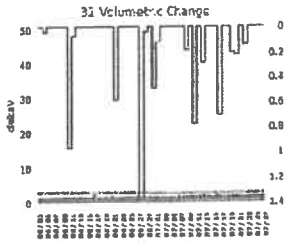
Data | Rain | Peak | Average | Dry | Ground Water

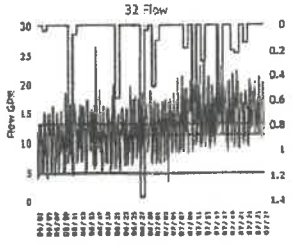
NOTES

Manhole 32 did not show a response to rain events. With little flow or volume change, the line ending at manhole 32 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted debris and weeping in structure.

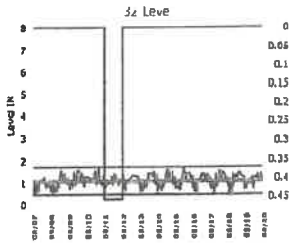
Phase I

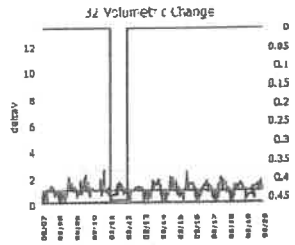


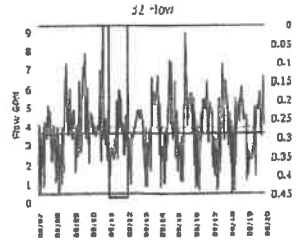




Phase II





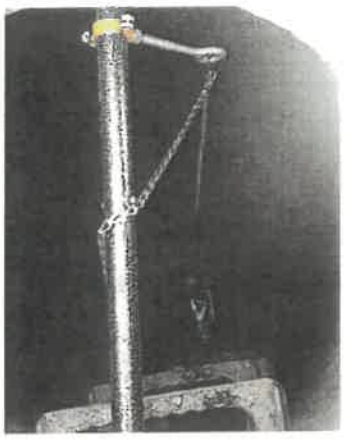


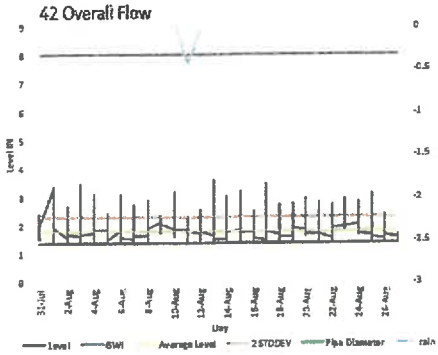
Study Area- iTrackers at final exit point: 35

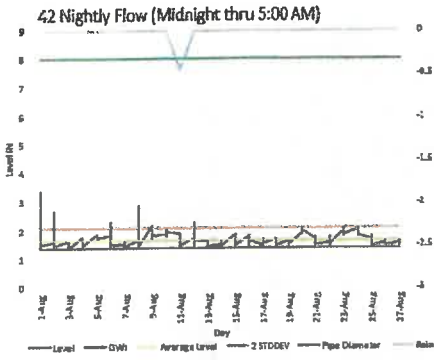
42

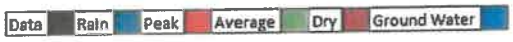
FINAL RATING: GOOD

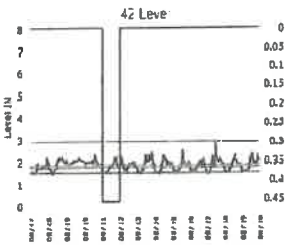
Phase II

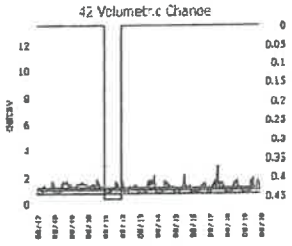


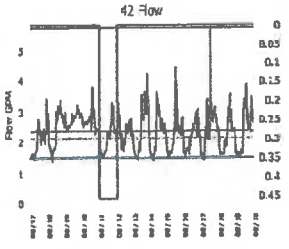












NOTES

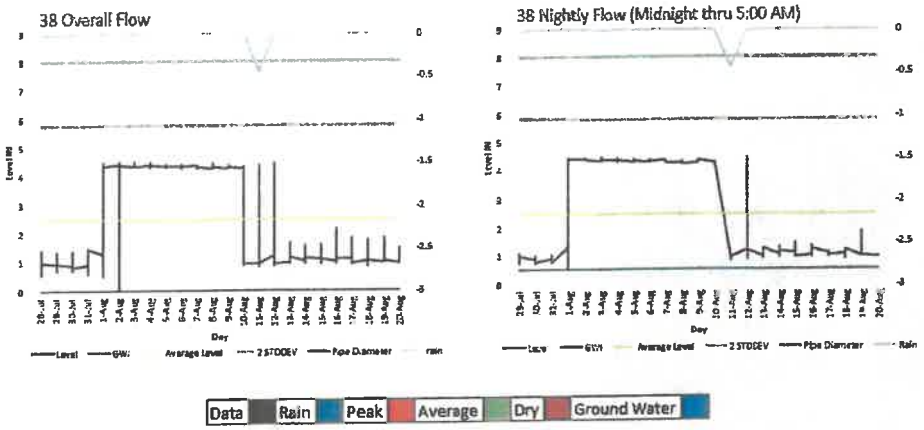
Manhole 42 did not show a response to rain events. With little flow or volume change, the line ending at manhole 42 does not seem to be a contributor to inflow and infiltration issues within this basin.

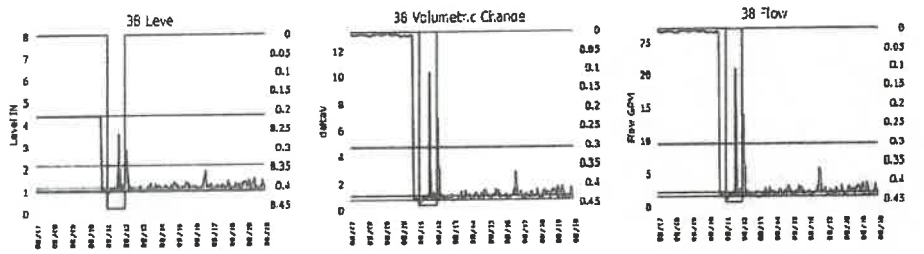
Study Area- iTrackers at final exit point: 35

38

FINAL RATING: MODERATE

Phase II





NOTES

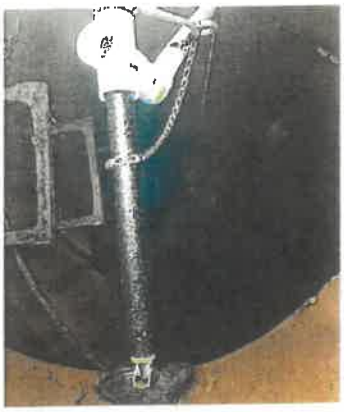
Manhole 38 showed a significant response to minor rain events. Flow and level changes during rain events indicate inflow and infiltration along the line ending at manhole 38. Flow and level changes exclusive of rain events indicate potential debris, blockages or O&M issues downstream of the line at manhole 38.

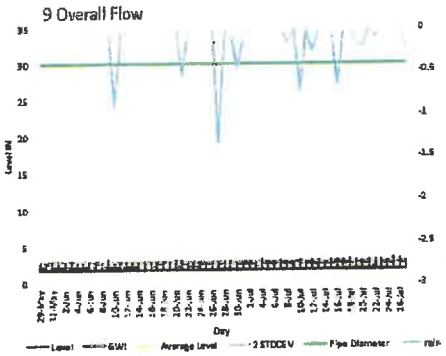
Study Area- iTrackers at final exit point: 35

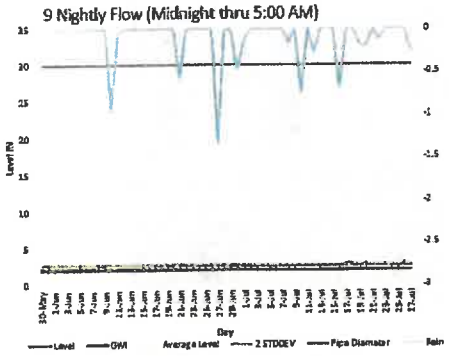
9

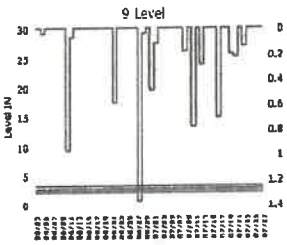
FINAL RATING: GOOD

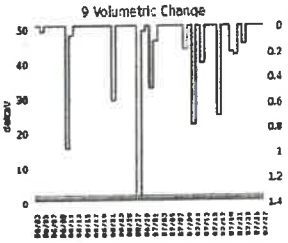
Phase I

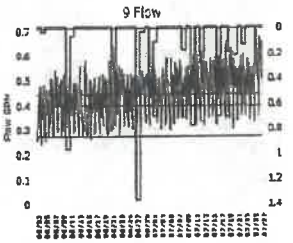












NOTES

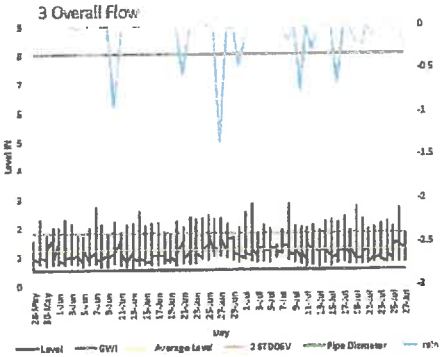
Manhole 9 does not show a response to rain events. With little flow or volume change, the line ending at manhole 9 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted weeping in structure.

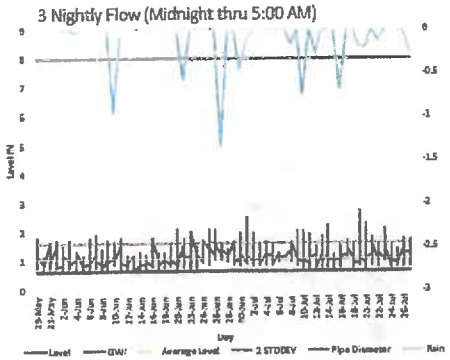
Study Area- iTrackers at final exit point: 35

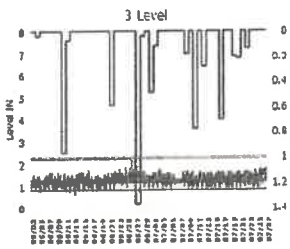
3

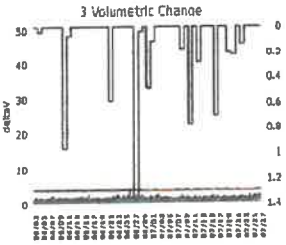
FINAL RATING: GOOD

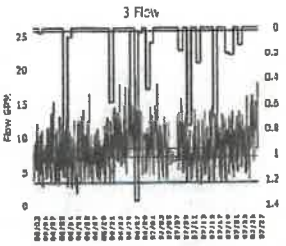
Phase I











NOTES

Manhole 3 does not show a response to rain events. With little flow or volume change, the line ending at manhole 3 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted debris in channel and on bench.

Study Area- iTrackers at final exit point: 35

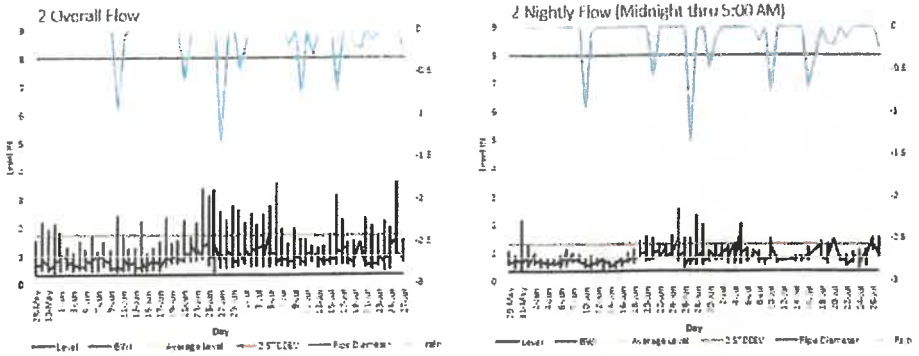
2

FINAL RATING: **FAIR**

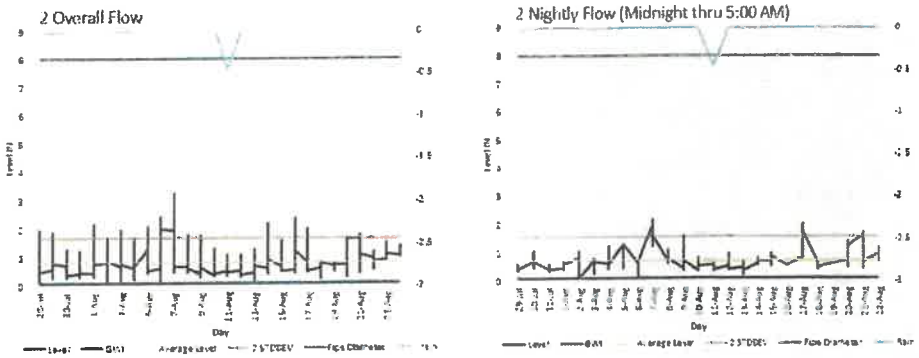
NOTES

Manhole 2 did not show a significant response to rain events. Flow and level changes during rain events indicate minimal inflow and infiltration along the line ending at manhole 2. Flow and level changes exclusive of rain events indicate potential debris, blockages or O&M issues downstream of the line at manhole 2.

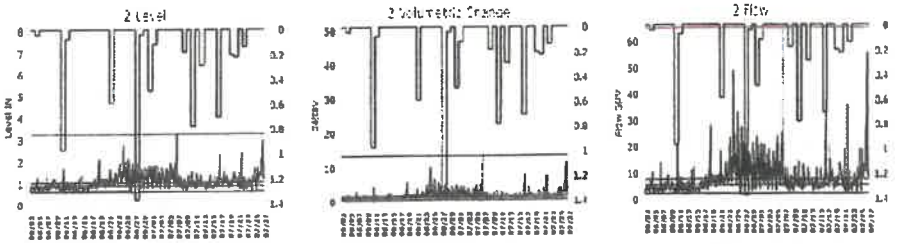
Phase I



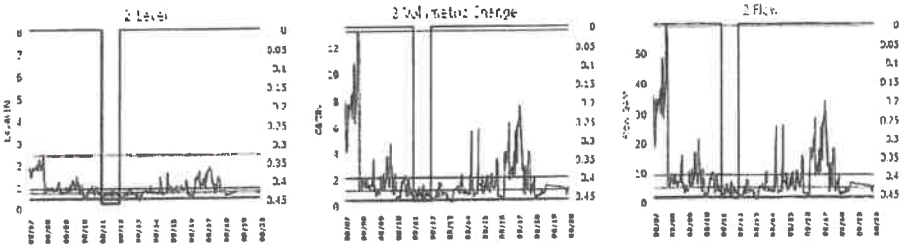
Phase II



Phase I



Phase II

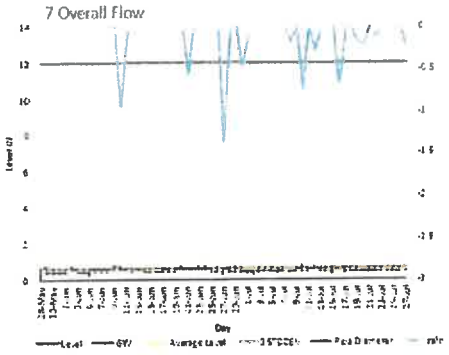


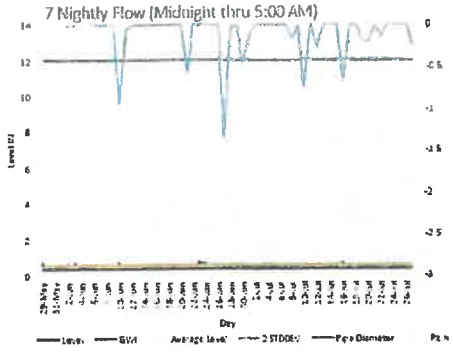
Study Area- iTrackers at final exit point: 35

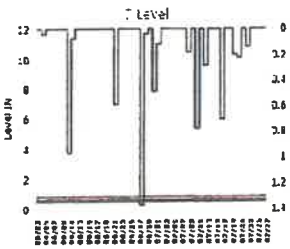
7

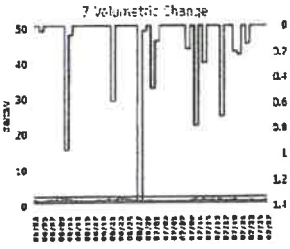
FINAL RATING: GOOD

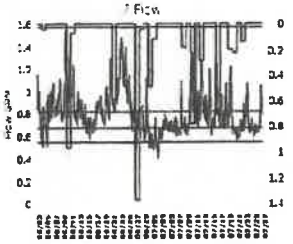
Phase I











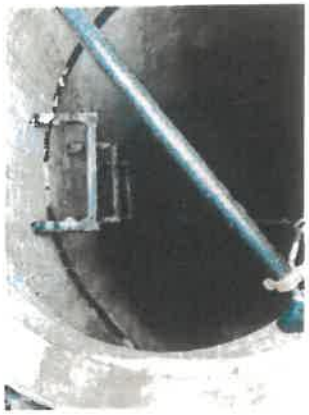
NOTES

Manhole 7 did not show a response to rain events. With little flow or volume change, the line ending at manhole 7 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted weeping and staining in structure.

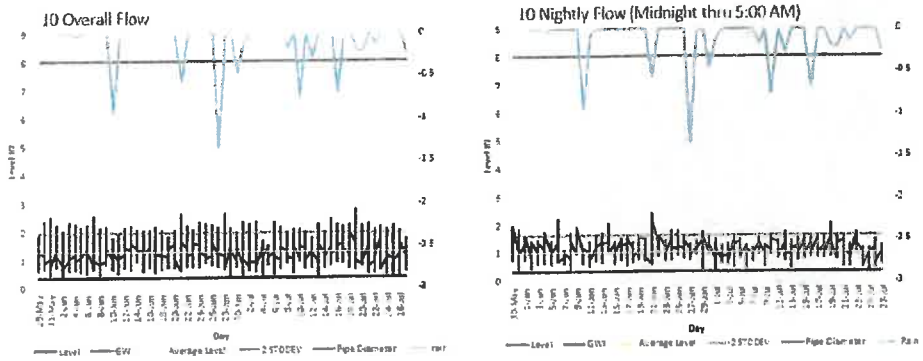
Study Area- iTrackers at final exit point: 35

10

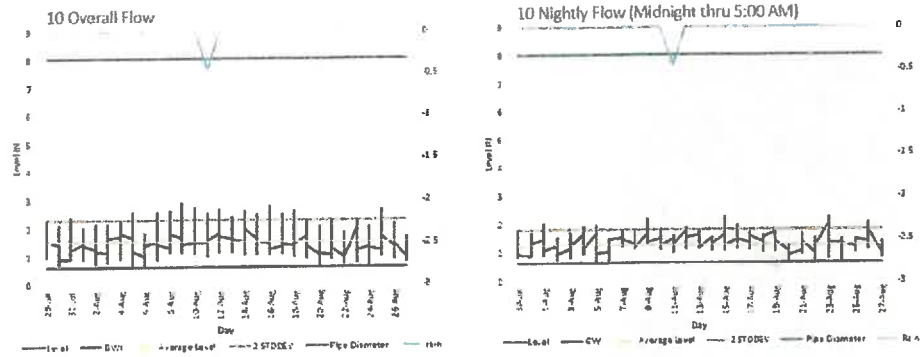
FINAL RATING: GOOD



Phase I

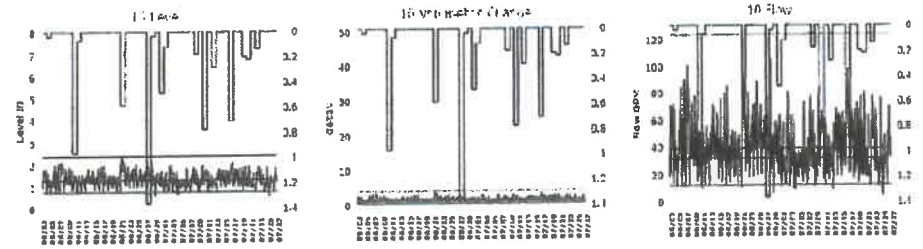


Phase II

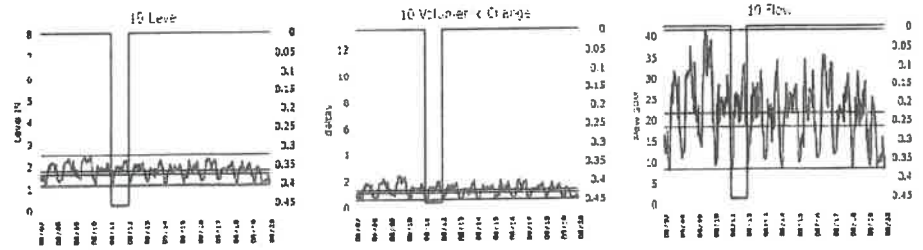


Data | Rain | Peak | Average | Dry | Ground Water

Phase I



Phase II



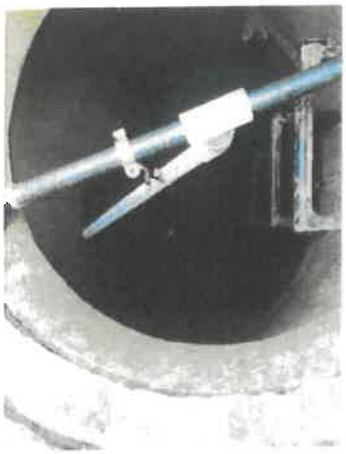
NOTES

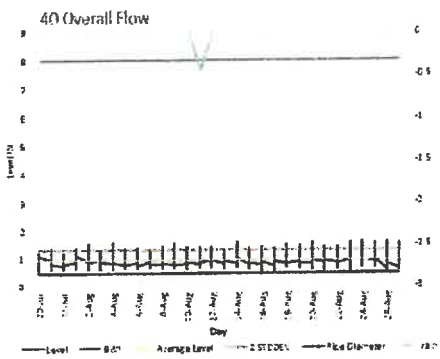
Manhole 10 did not show a response to rain events. With little flow or volume change, the line ending at manhole 10 does not seem to be a contributor to inflow and infiltration issues within this basin.

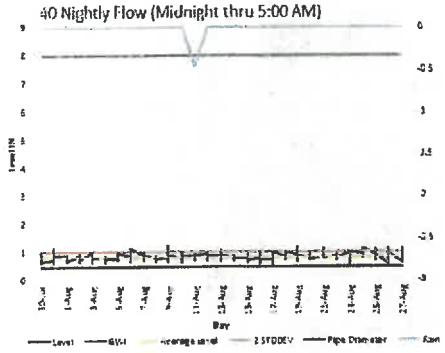
Study Area- iTrackers at final exit point: 35

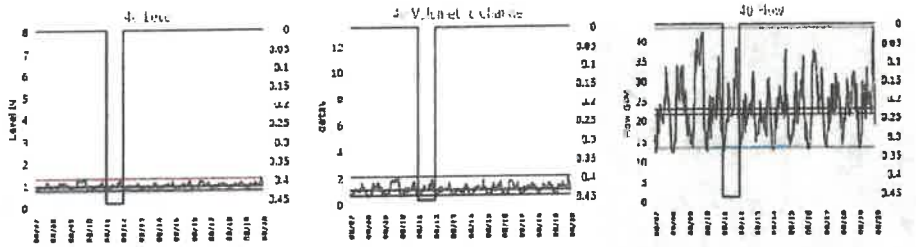
40 **FINAL RATING:** GOOD

Phase II









NOTES

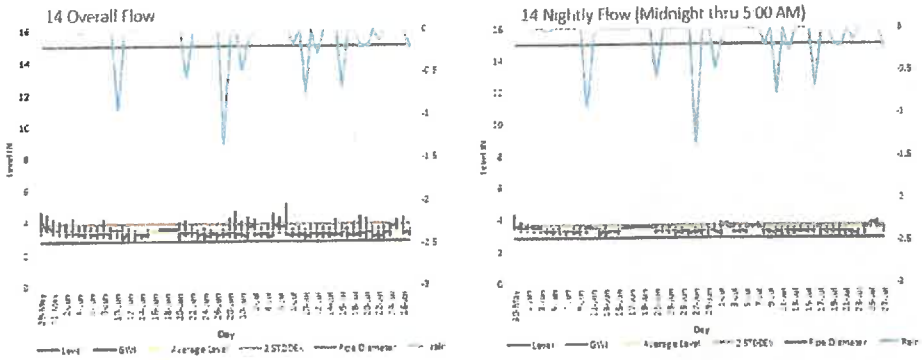
Manhole 40 did not show a response to rain events. With little flow or volume change, the line ending at manhole 40 does not seem to be a contributor to inflow and infiltration issues within this basin.

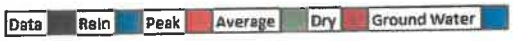
Study Area- iTrackers at final exit point: 35

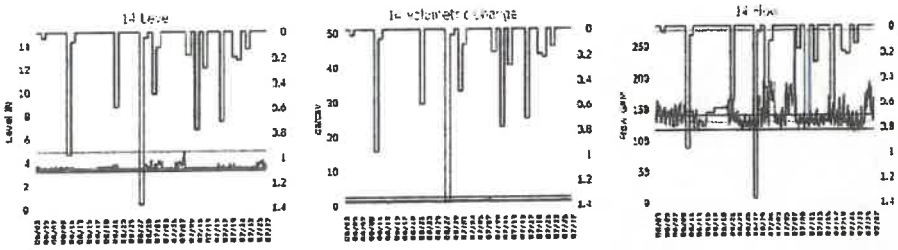
14

FINAL RATING: GOOD

Phase I







NOTES

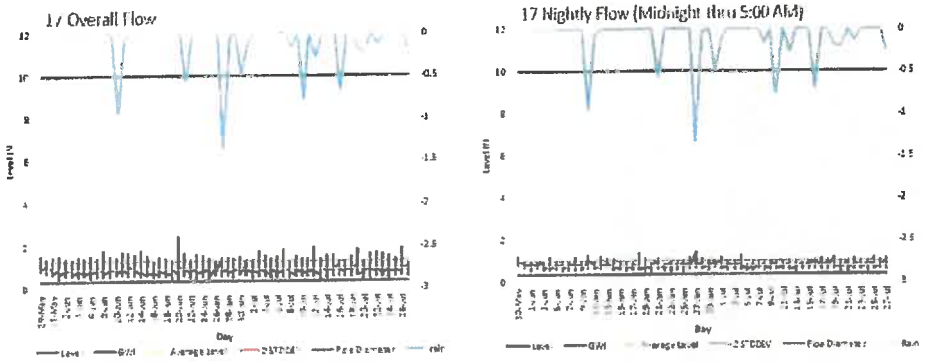
Manhole 14 did not show a response to rain events. With little flow or volume change, the line ending at manhole 14 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted weeping in structure.

Study Area- iTrackers at final exit point: 35

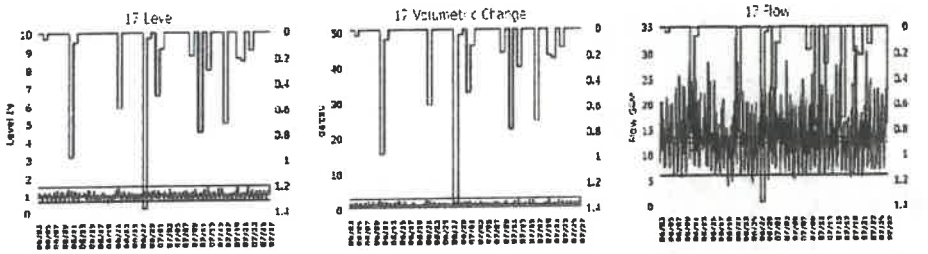
17

FINAL RATING: GOOD

Phase I



Data | Rain | Peak | Average | Dry | Ground Water



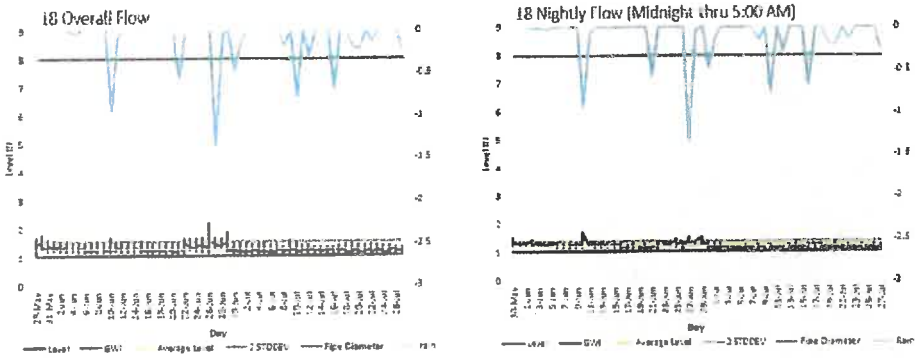
NOTES

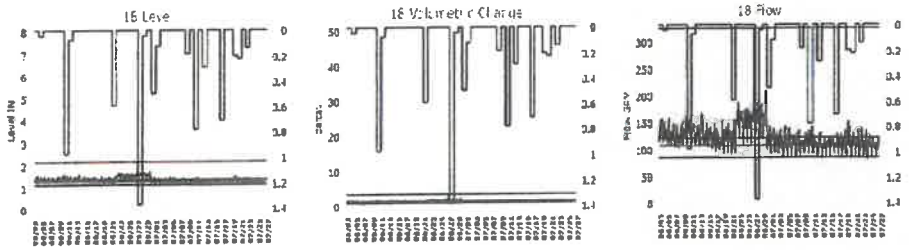
Manhole 17 did not show a response to rain events. With little flow or volume change, the line ending at manhole 17 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted debris in channel.

Study Area- iTrackers at final exit point: 35

18 **FINAL RATING:** **FAIR**

Phase I





NOTES

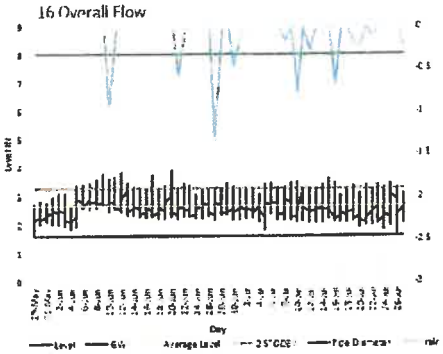
Manhole 18 did not show a significant response to rain events. Flow and level changes during rain events indicate minimal inflow and infiltration along the line ending at manhole 18. Noted debris and staining in structure.

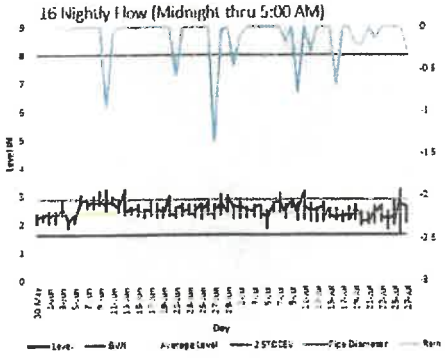
Study Area- iTrackers at final exit point: 35

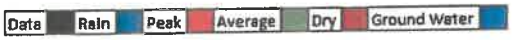
16

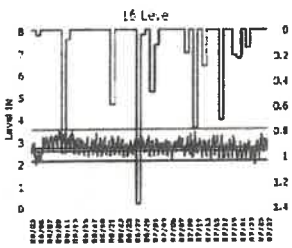
FINAL RATING: MODERATE

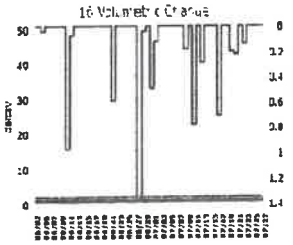
Phase I

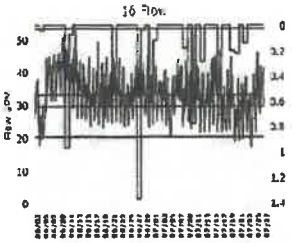












NOTES

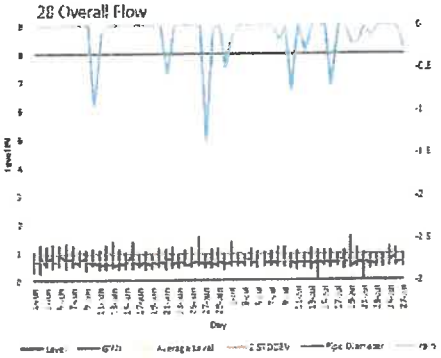
Manhole 16 showed a response to rain events. Flow and level changes during rain events indicate inflow and infiltration along the line ending at manhole 16. Flow levels in this section seem to be higher than expected flow rates for this diameter of pipe, indicating potential capacity, blockage or O&M issues downstream of the line at manhole 16. Noted debris and staining in structure.

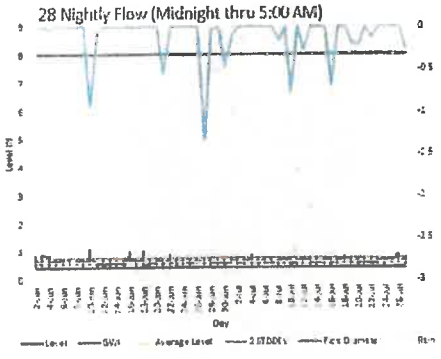
Study Area- iTrackers at final exit point: 35

28

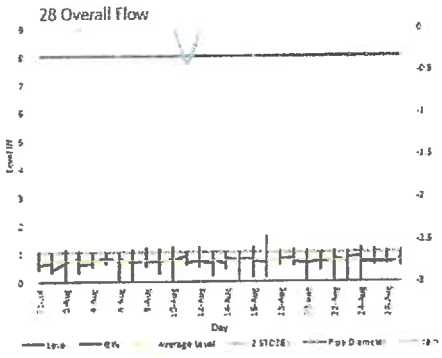
FINAL RATING: GOOD

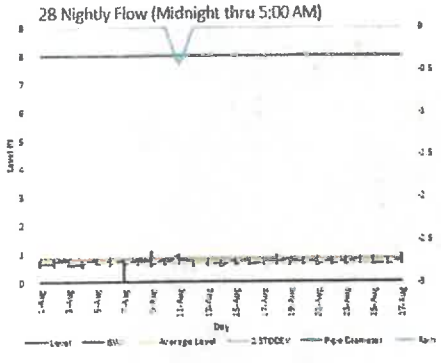
Phase I





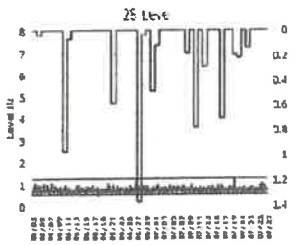
Phase II

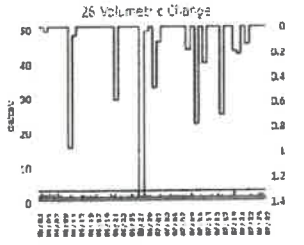


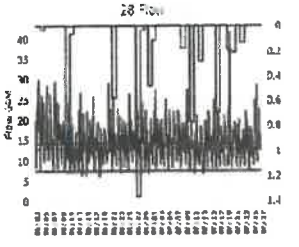


Data | Rain | Peak | Average | Dry | Ground Water

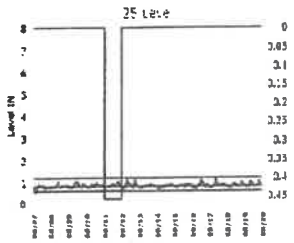
Phase I

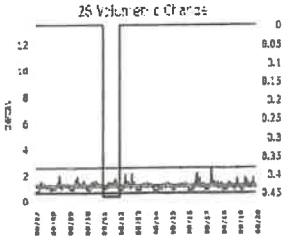


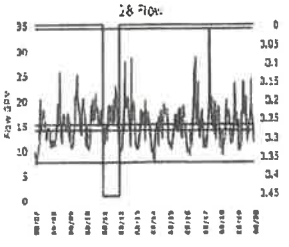




Phase II







NOTES

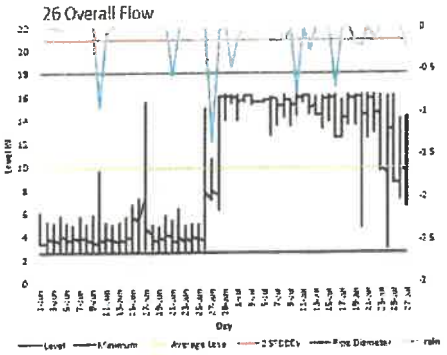
Manhole 28 did not show a response to rain events. With little flow or volume change, the line ending at manhole 28 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted debris in channel.

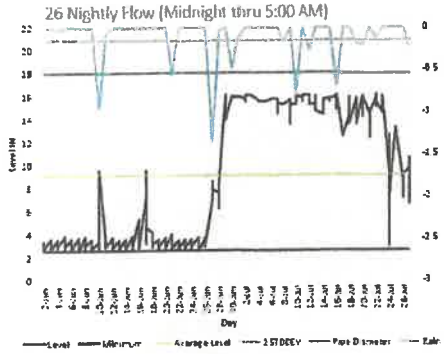
Study Area- iTrackers at final exit point: 35

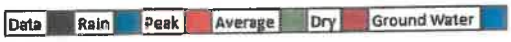
26

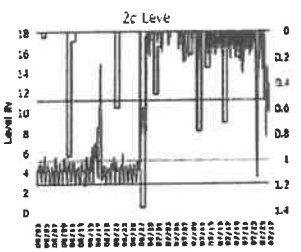
FINAL RATING: MODERATE

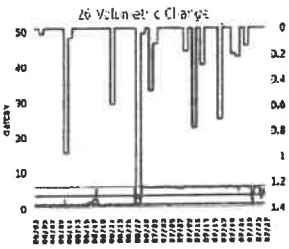
Phase I

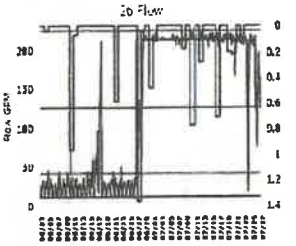












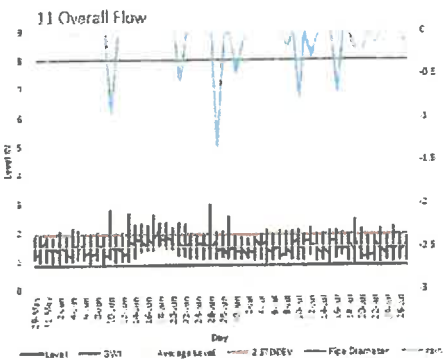
NOTES

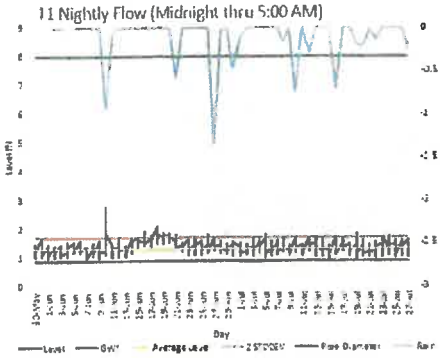
Manhole 26 showed a response to rain events to the point of almost surcharging. Flow and level changes during rain events indicate inflow and infiltration along the line ending at manhole 26. Flow and level changes exclusive of rain events indicate potential debris, blockages or O&M issues downstream of the line at manhole 26. Noted debris on bench.

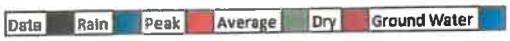
Study Area- iTrackers at final exit point: 35

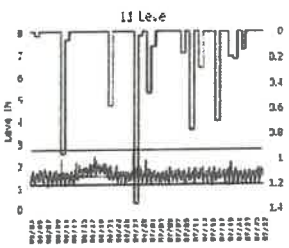
11 **FINAL RATING:** **FAIR**

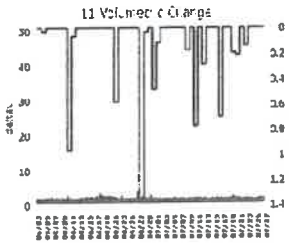
Phase I

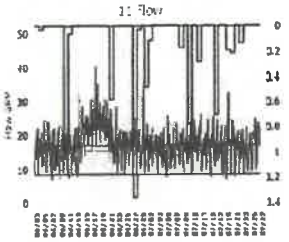












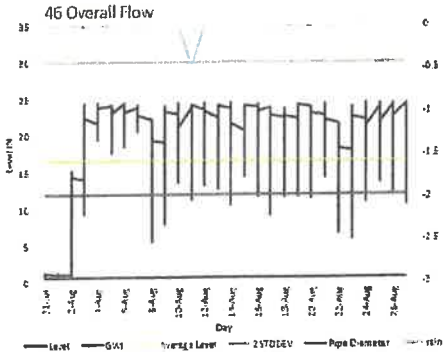
NOTES

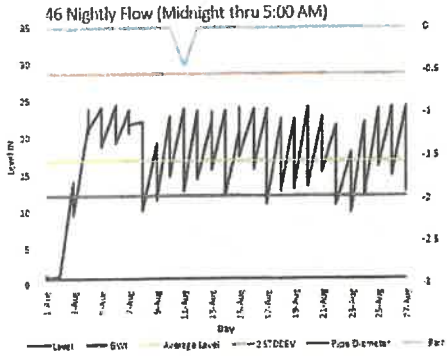
Manhole 11 did not show a significant response to rain events. Flow and level changes during rain events indicate minimal inflow and infiltration along the line ending at manhole 11. Noted debris in structure.

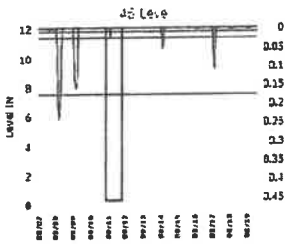
Study Area- iTrackers at final exit point: 35

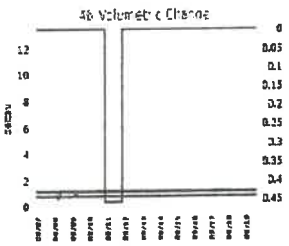
46 **FINAL RATING:** **SEVERE**

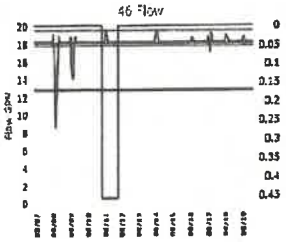
Phase II











NOTES

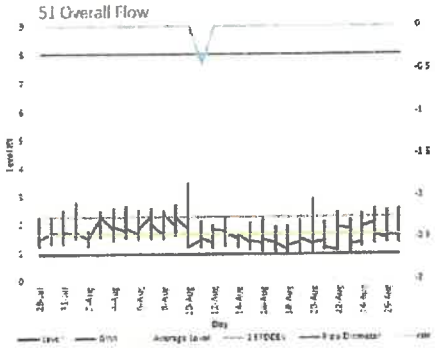
Manhole 46 does not show a response to rain events. Flow and level changes exclusive of rain events indicate potential debris, blockages or O&M issues downstream of the line at manhole 46.

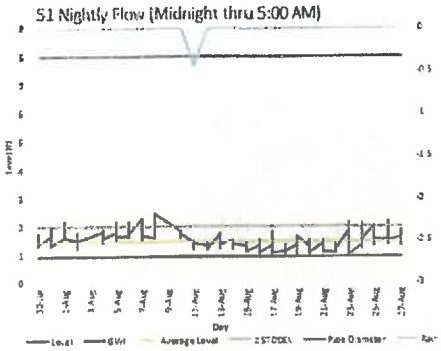
Study Area- iTrackers at final exit point: 35

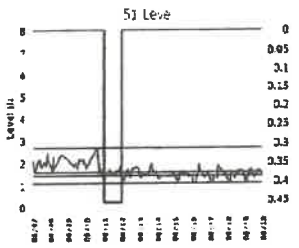
51

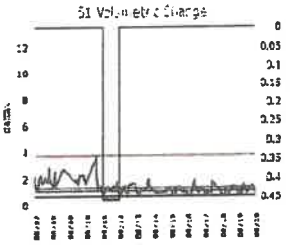
FINAL RATING: GOOD

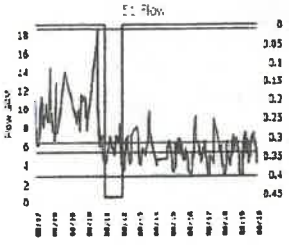
Phase II











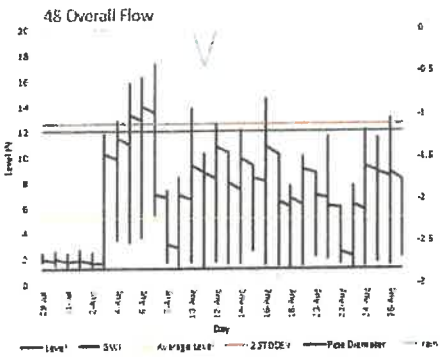
NOTES

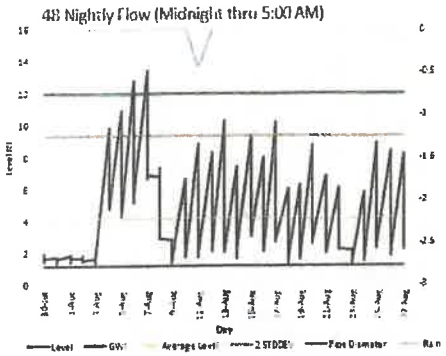
Manhole 51 does not show a response to rain events. With little flow or volume change, the line ending at manhole 51 does not seem to be a contributor to inflow and infiltration issues within this basin.

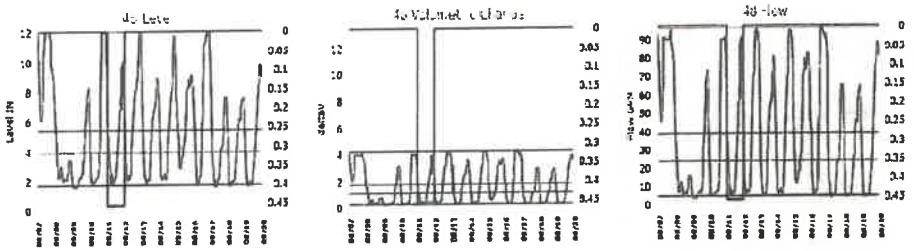
Study Area- iTrackers at final exit point: 35

48 **FINAL RATING:** **MODERATE**

Phase II







NOTES

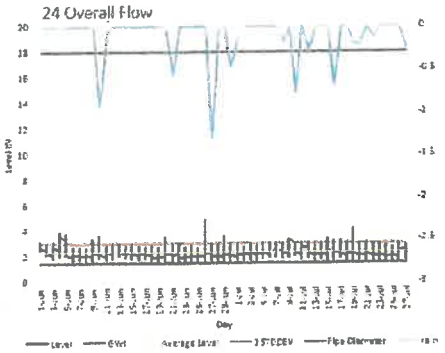
Manhole 48 does not show a response to rain events. Flow and level changes exclusive of rain events indicate potential debris, blockages or O&M issues downstream of the line at manhole 48.

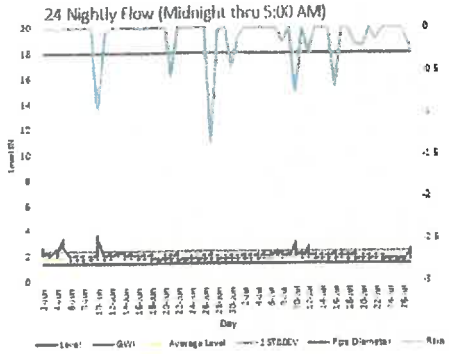
Study Area- iTrackers at final exit point: 35

24

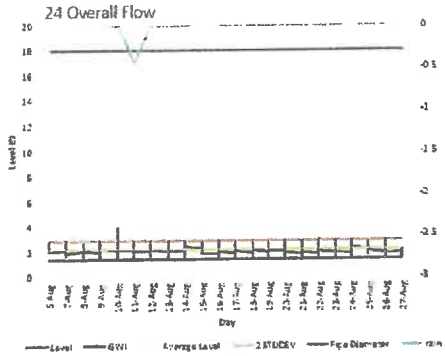
FINAL RATING: FAIR

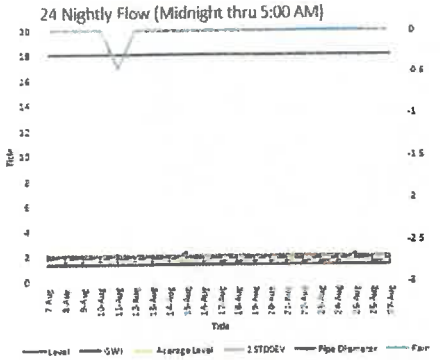
Phase I

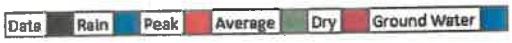




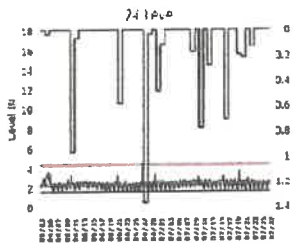
Phase II

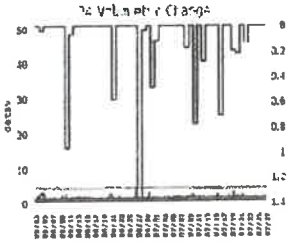


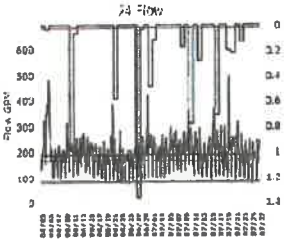




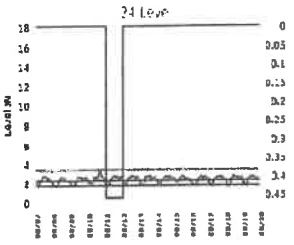
Phase I

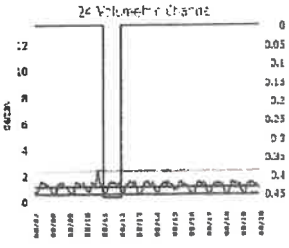


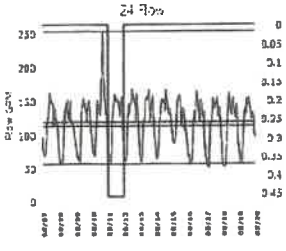




Phase II







NOTES

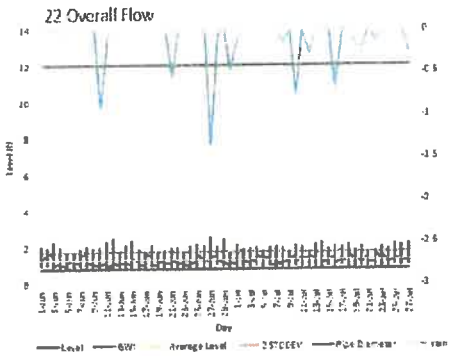
Manhole 24 did not show a significant response to rain events. Flow and level changes during rain events indicate minimal inflow and infiltration along the line ending at manhole 24. Noted debris in structure.

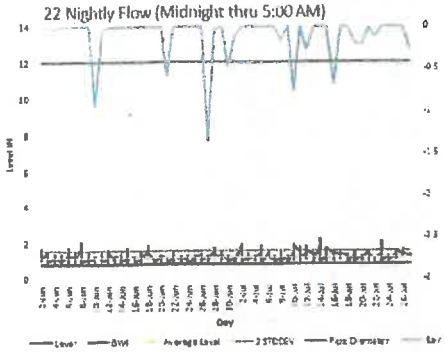
Study Area- iTrackers at final exit point: 35

22

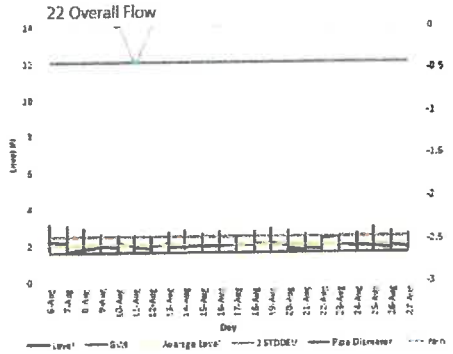
FINAL RATING: GOOD

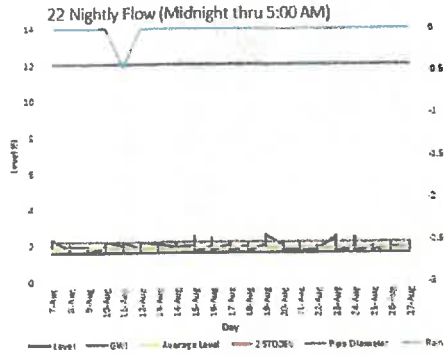
Phase I





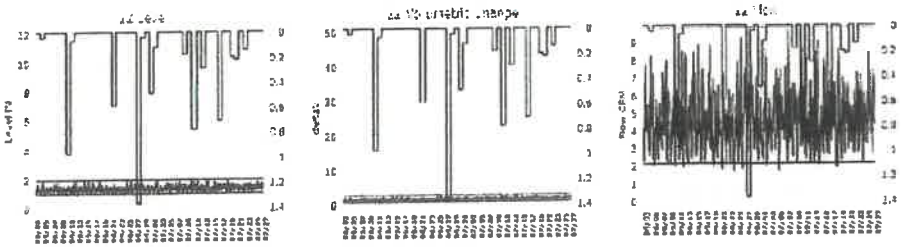
Phase II



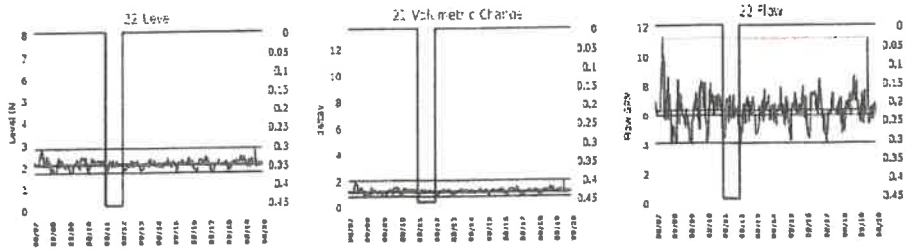


Data | Rain | Peak | Average | Dry | Ground Water

Phase I



Phase II



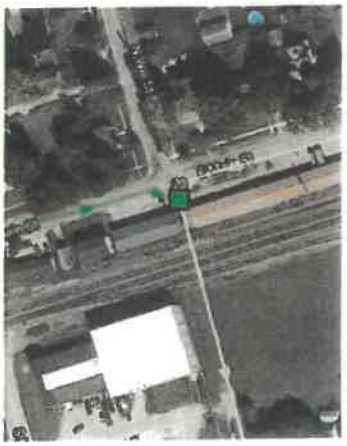
NOTES

Manhole 22 did not show a response to rain events. With little flow or volume change, the line ending at manhole 22 does not seem to be a contributor to inflow and infiltration issues within this basin.

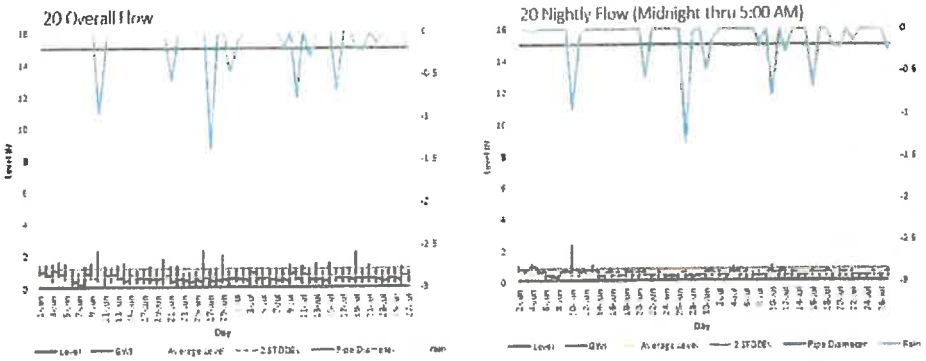
Study Area- iTrackers at final exit point: 35

20

FINAL RATING: FAIR



Phase I



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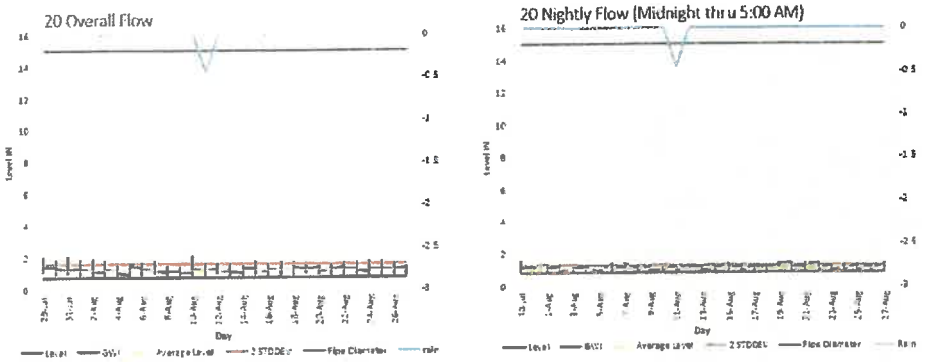

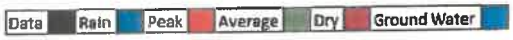

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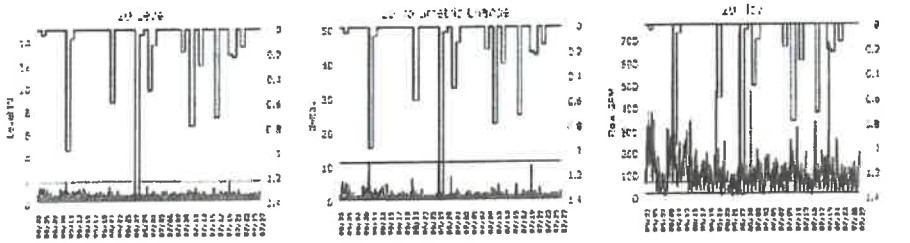

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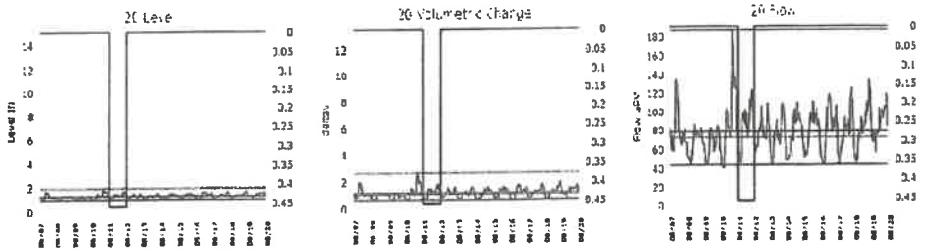


NOTES

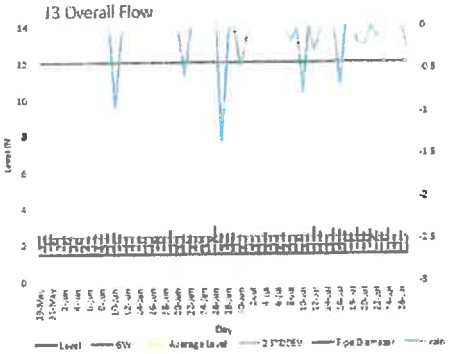
Manhole 20 did not show a significant response to rain events. Flow and level changes during rain events indicate minimal inflow and infiltration along the line ending at manhole 20. Noted debris in structure.

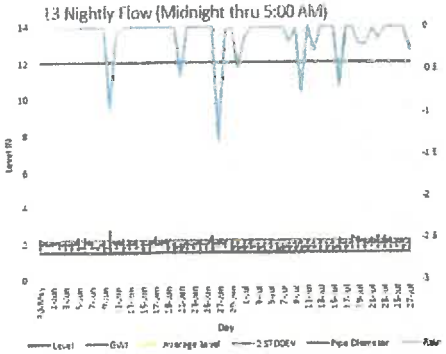
Study Area- iTrackers at final exit point: 35

13

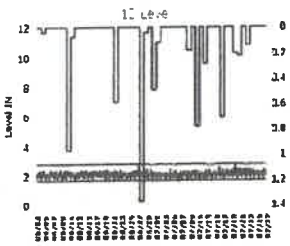
FINAL RATING: GOOD

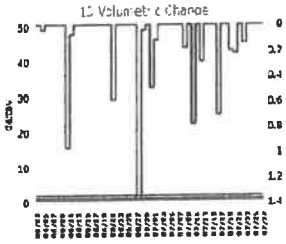
Phase I

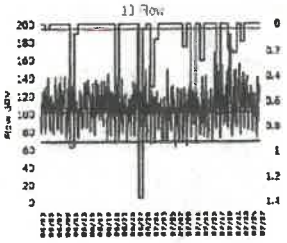




Data | Rain | Peak | Average | Dry | Ground Water







NOTES

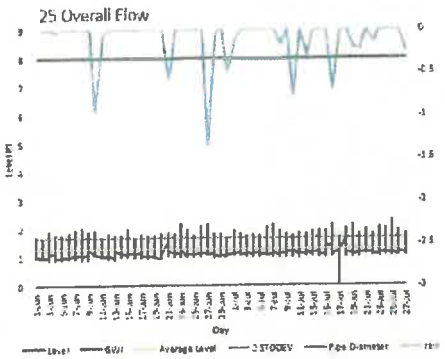
Manhole 13 did not show a response to rain events. With little flow or volume change, the line ending at manhole 13 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted debris in structure.

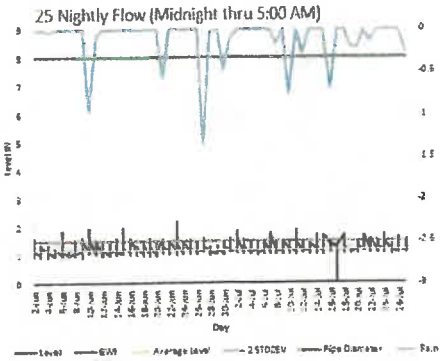
Study Area- iTrackers at final exit point: 35

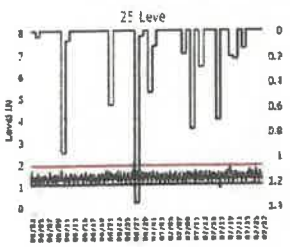
25

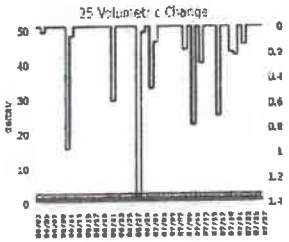
FINAL RATING: GOOD

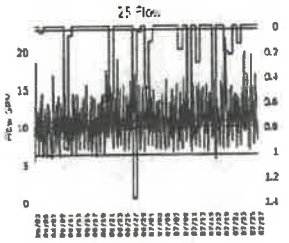
Phase I





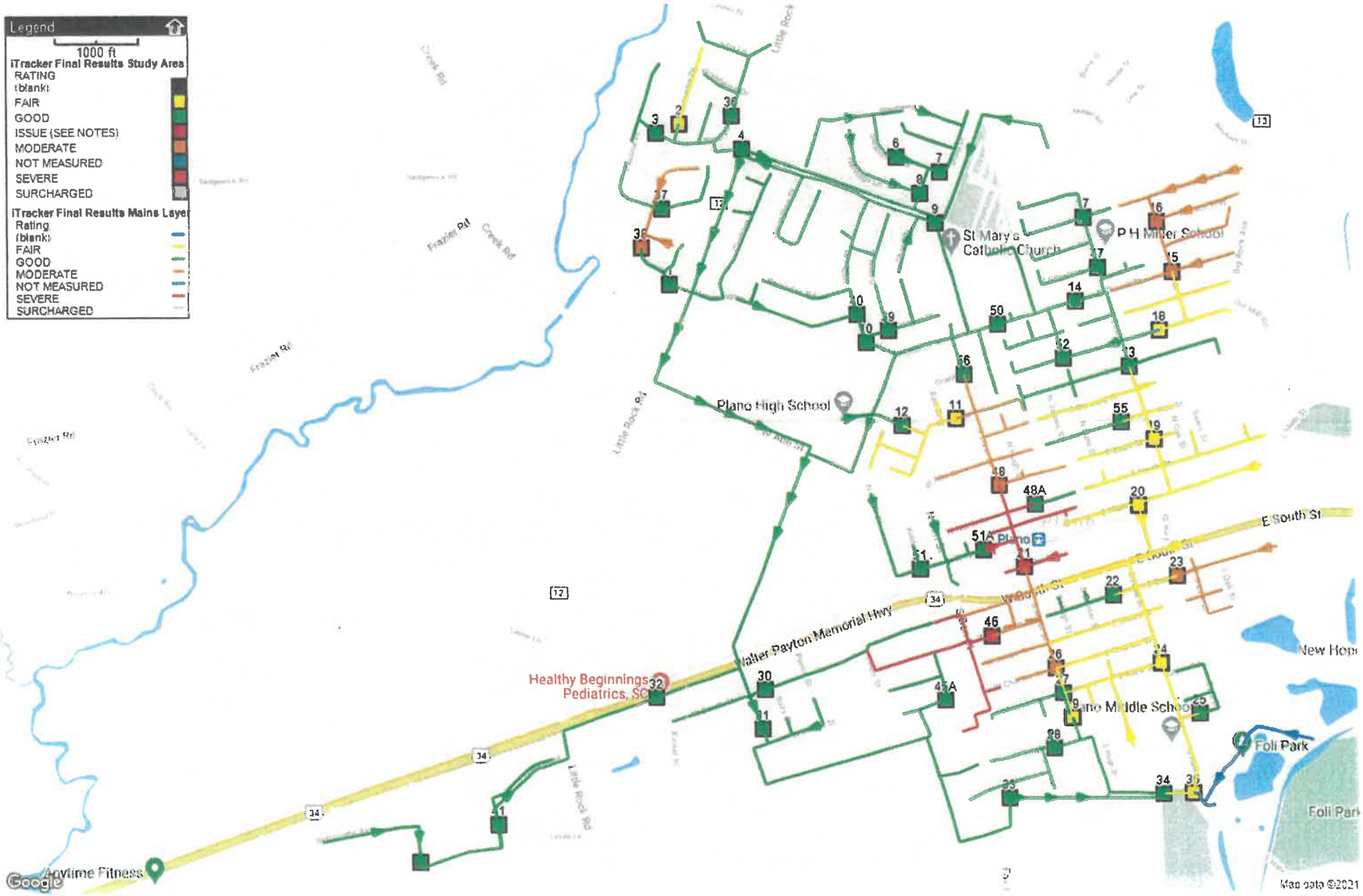


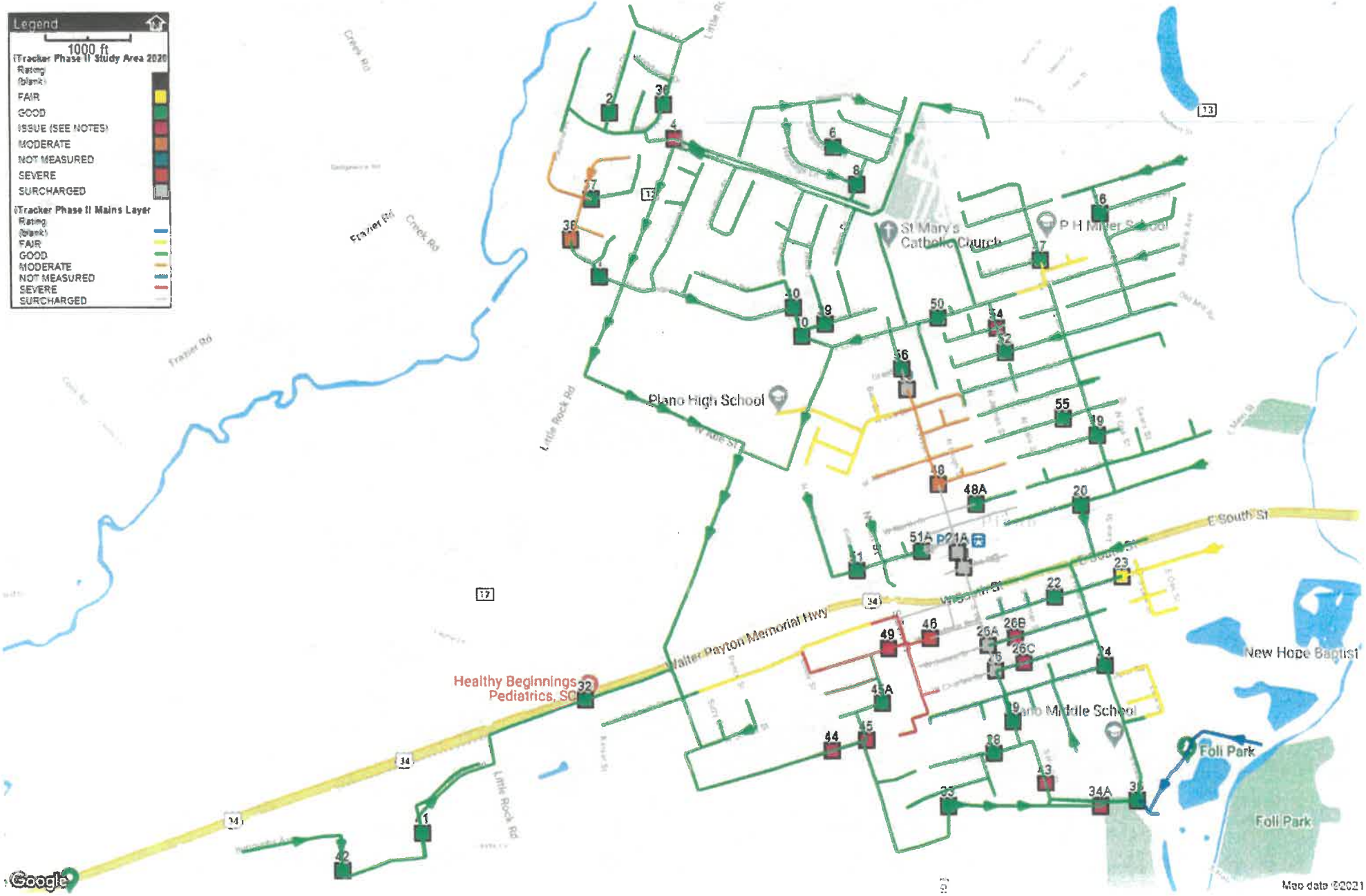




NOTES

Manhole 25 did not show a response to rain events. With little flow or volume change, the line ending at manhole 25 does not seem to be a contributor to inflow and infiltration issues within this basin. Noted debris in structure.


Legend
1000 ft
iTracker Final Results Study Area
RATING
(blank)
FAIR
GOOD
ISSUE (SEE NOTES)
MODERATE
NOT MEASURED
SEVERE
SURCHARGED
iTracker Final Results Mains Layer
Rating
(blank)
FAIR
GOOD
MODERATE
NOT MEASURED
SEVERE
SURCHARGED
Plano High School
St Mary's Catholic Church
P H Miller School
Walter Payton Memorial Hwy
E South St
Healthy Beginnings Pediatrics, SC
Foli Park
Anytime Fitness
Google
Map data ©2021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1000 ft
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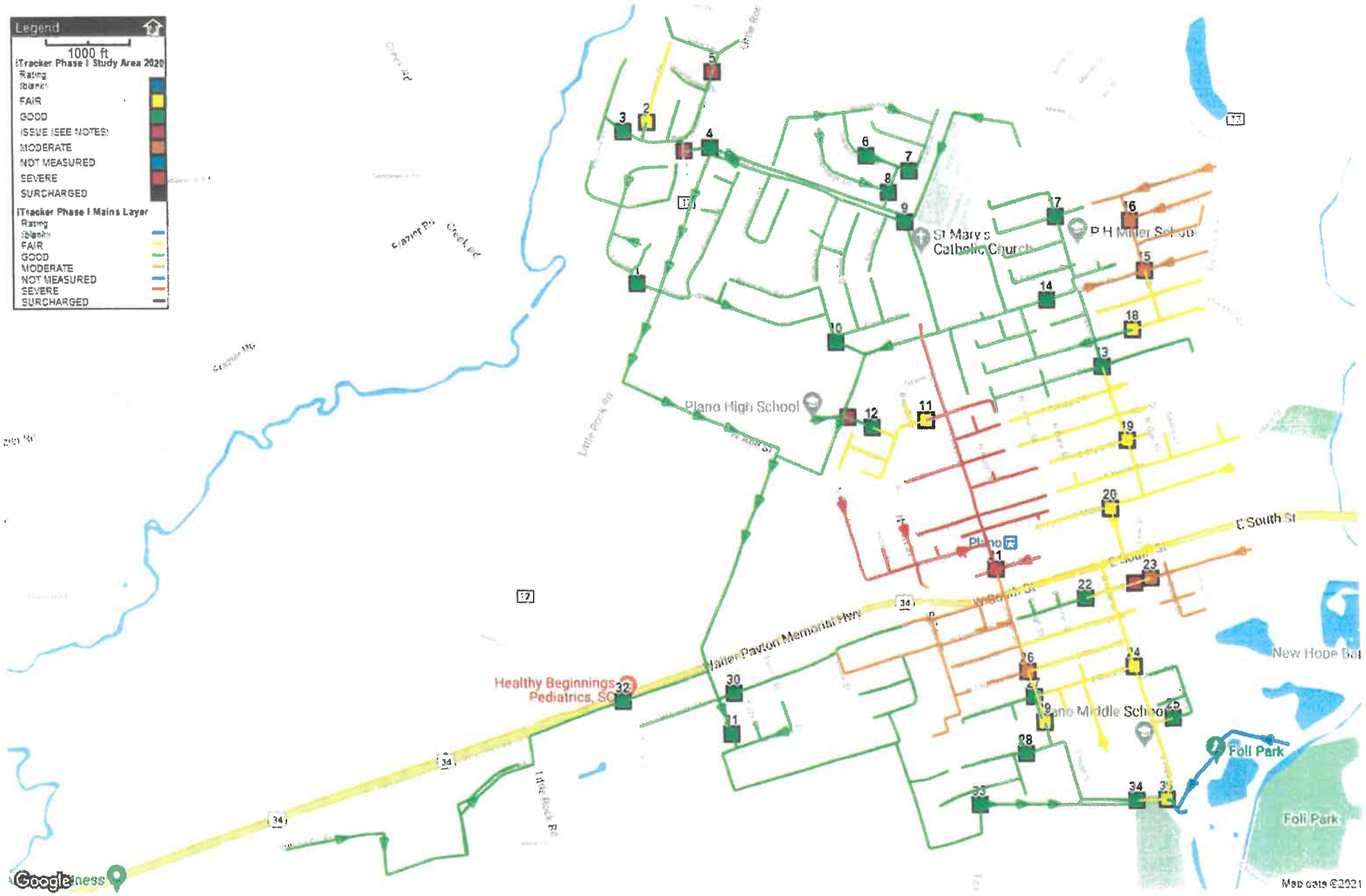
ISSUE (SEE NOTES)
MODERATE
NOT MEASURED
SEVERE
SURCHARGED
iTracker Phase II Mains Layer
Rating
(blank)
FAIR
GOOD
MODERATE
NOT MEASURED
SEVERE
SURCHARGED
Fraizer Rd
Creek Rd
Little Rock Rd
Plano High School
St Mary's Catholic Church
P H Miller School
E South St
Walter Payton Memorial Hwy
Healthy Beginnings Pediatrics, SC
New Hope Baptist
Foli Park
Google
Map data ©2021


Legend
1000 ft
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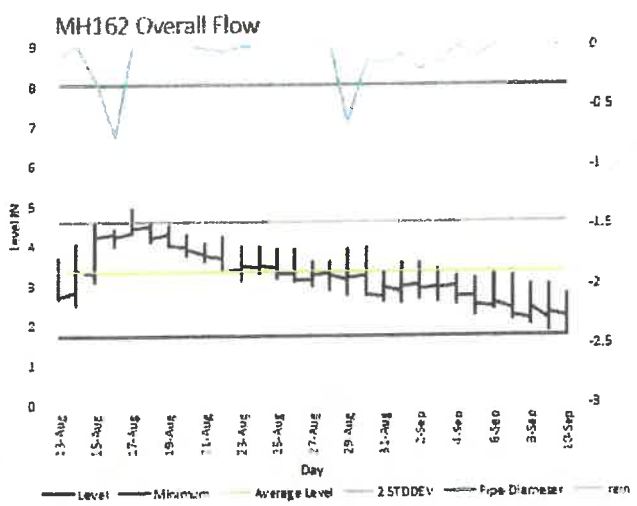
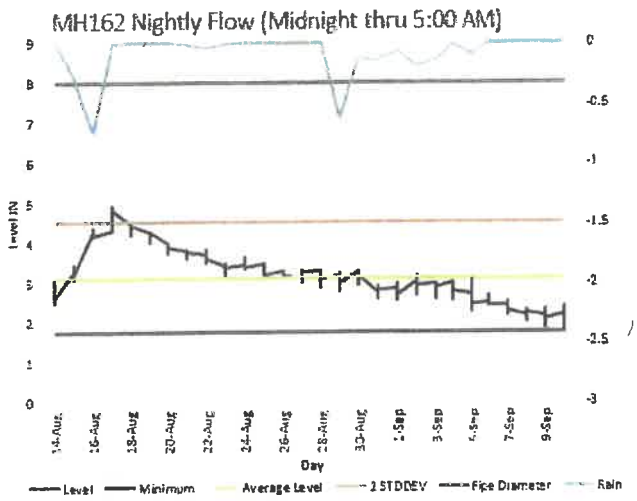
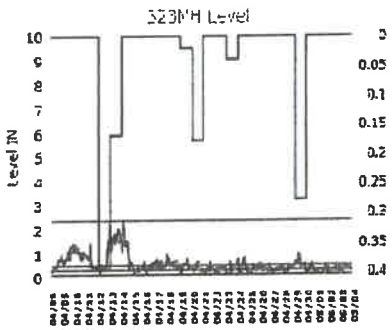
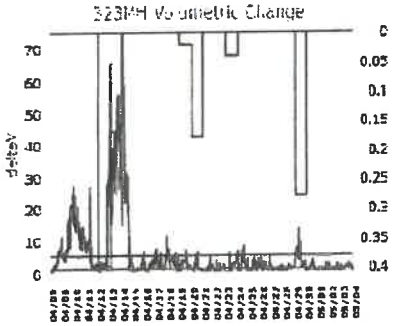
ISSUE (SEE NOTES)
MODERATE
NOT MEASURED
SEVERE
SURCHARGED
iTracker Phase I Mains Layer
Rating
(blank)
FAIR
GOOD
MODERATE
NOT MEASURED
SEVERE
SURCHARGED
St Mary's Catholic Church
P H Miller School
Plano High School
Plano
E South St
Healthy Beginnings Pediatrics, SC
Foli Park
Foli Park
Google
Map data ©2021

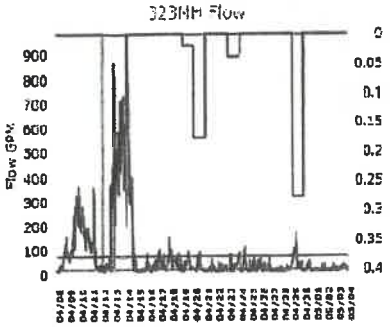


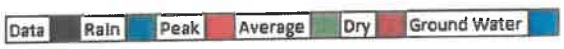


Level: The absolute highest and lowest points per day displayed on the graph
Minimum Level: Lowest point in the data set
Average Level: The calculated average level in the data set
2 STD DEV: The point that represents +2 standard deviations from the average in the data set
Pipe Diameter- Plots the pipe diameter in relation to the flow levels.
Rain: Plotted along the Z axis representing the number of inches of rain based on historical rain data taken from the closest rain gauge location available. It is represented in negative numbers only so that the data plots to the top of the chart
Night Time Isolation Table: Realizing that night time flow information is imperative to understanding potential I/I contributors to the overall system flow, we isolate out the data points from the period of midnight to 5:00am for the data set









Level IN: Scale to pipe diameter

Delta V: The change in volume referenced to the dry day average

Flow GPM: Flow Gallons Per Minute based on the Delta V and population model

Data: Hourly average values
Rain: Rainfall values by day
Peak: Maximum hourly average value overall dataset
Average: Mean value overall dataset
Dry: Mean dry day value. Average of the days which have the lowest 20% of flow. Weighted for weekday and weekend days.
Ground Water: Minimum, hourly average, dry day value

DUKE'S
ROOTED IN INNOVATION

1020 Hiawatha Blvd. West. Syracuse, NY 13204
72 East Street, Crystal Lake, IL 60014

February 8, 2021

Nathan Bullard
City of Plano
Plano, IL 60545

RE: Precision I&I Microdetection Study

Dear Mr. Bullard,

Thank you for the opportunity to work on your Precision I&I Microdetection Study. Please find enclosed, the deliverables for your project. If you have any questions on these deliverables, please feel free to contact Chad Smeltzer or our data team via email at datateam@dukes.com.

Sincerely,

Tammy Carlo
Data Analyst
680-207-7716

CITY OF PLANO, IL

WASTEWATER COLLECTION SYSTEM

SANITARY SEWER INFILTRATION & INFLOW INVESTIGATION & REPORT

Prepared By:

WALTER E. DEUCHLER ASSOCIATES, INC.
Consulting Engineers

MARCH 2012
Revision 0

3.0 Private Sanitary Sewer System **3-1**

3.1 Sanitary Services 3-1

3.2 Building Footing Drains 3-2

3.3 Building Downspouts 3-3

4.0 Conclusion **4-1**

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4.2 Recommendations by City Staff 4-2

4.3 Recommendations and Probable Costs 4-4

4.4 Funding 4-8

4.5 Time Schedule 4-10

Appendix A: Smoke Testing Results

Appendix B: Sewer Televising Results

Appendix C: Manhole Inspection Results

Appendix D: Building Inspection Survey Results

Exhibits

(4) citizens' complaints, (5) desire to enlarge service area and (6) financial planning. In the past, the construction of relief sewers, larger lift stations and treatment facilities, along with the use of wastewater overflows throughout the collection system were standard practices of the industry for managing I&I problems. This last approach (overflows), however, often results in untreated wastewater being discharged into rivers, streams, lakes and open ditches, which is now considered illegal. A comprehensive sewer system evaluation and rehabilitation plan is required for effective protection of the infrastructure in nearly all cases regardless of the initial reasons for the evaluation.[2]

1.1 Purpose and Scope

The City of Plano's leadership determined (as recommended by a previous study discussed in Part 1.3 of this report) that professional engineering services were needed to conduct an intensive investigation of the sanitary sewer system in an attempt to locate sources of extraneous inflow and infiltration (I&I) in certain areas (see Exhibit A located at the end of this report), and to provide a course of action for the sewer system's rehabilitation. The City's goals are to achieve the following:

1. Reduce sanitary sewer backups into residential homes.
2. Reduce storm water inflow into the sanitary sewer system.
3. Reduce ground water infiltration entering the sanitary sewer system.

On August 24, 2005, the City of Plano entered into an engineering agreement with Walter E. Deuchler Associates, Inc. (WEDA) to develop a comprehensive report of the sanitary sewer system's condition as well as to recommend improvements and provide probable construction costs to rehabilitate the sewer system in the designated study area. The investigative tasks performed are described as follows:

Smoke Testing - Smoke testing is a viable and cost-effective procedure used to detect possible inflow in the sewer system. It consists of blowing smoke, under pressure, into a sewer section, and observing the appearance of smoke at key locations. Key locations may be described as storm inlets, cross connections between storm and sanitary sewers, broken tiles, defective manholes, cracks in pavement, downspouts and window wells around residential/commercial buildings illegally connected to the sanitary services. A typical

1.2 Study Area

Exhibit A depicts the limits of the sanitary sewer system included in this investigation. Located in both the north central and south central regions of the City of Plano, the study area contains approximately 590 acres and 84,100 linear feet of sanitary sewers varying in size from 6-inches to 24-inches in diameter.

1.3 General Background

In 2002, WEDA prepared a report titled Wastewater Treatment Plant Engineering Report for the City of Plano. The report included the results of an intensive study of the City's sanitary sewer system to identify areas of the sewer system that were subject to excessive amounts of inflow (storm water runoff) and infiltration (ground water) during rainstorms.

On March 4, 2002, WEDA submitted a Facility Plan Update to the City of Plano. As part of the Facility Plan Update, a wastewater flow monitoring study was conducted. The purpose of the study was to identify areas of the City's sanitary sewer system that allowed large amounts of I&I to enter the system. At the request of the City, this study was to determine the available capacities of the existing trunk and interceptor sewers during heavy rainstorms as well as identify areas that may contribute excessive amounts of I&I to assist in planning for future growth. The results from the wastewater flow monitoring study are stated below.

Flow monitoring performed in 2001 indicated that the daily average flow during dry weather with high ground water conditions is 0.69 MGD. Peak hourly flow during a 5-year storm event with high ground water conditions was measured at 3.45 MGD with a peak instantaneous flow of 4.14 MGD. The existing wastewater treatment plant (WWTP) was sized for a population equivalent of 9,500 P.E. or 0.95 MGD. The effluent from the WWTP discharges into Big Rock Creek.

At that time, the population within the facility planning area was expected to grow by 17,460 P.E. As a result an additional 1.75 MGD of capacity would be required at the wastewater treatment plant to handle a total daily average flow during dry weather with high ground water conditions of 2.44 MGD (0.69 MGD + 1.75 MGD). It was also estimated that the peak hourly flow during a 5-year storm event with high ground water conditions would reach

2. *Handbook for Sewer System Infrastructure Analysis and Rehabilitation*. EPA/625/6-91/030, Office of Research and Development, Environmental Protection Agency, Cincinnati, OH, 1991.

3. *Technology and Design Deficiencies at Publicly Owned Treatment Works*, Water Environment and Technology, December 1989.

4. *Sewer System Evaluation, Rehabilitation and New Construction: A Manual of Practice*. EPA/600/2-77/017d, NTIS No. PB-279248. U.S. Environmental Protection Agency, Municipal Environmental Research Laboratory, Office of Research and Development, Cincinnati, OH, December 1977.

5. *Impact of Groundwater Migration on Rehabilitation of Sanitary Sewers*, National Water Well Association, RJN Environmental Associates, Inc., and Washington Suburban Sanitary Commission, 1984.

We would also like to acknowledge and thank the following officials for their assistance and cooperation received in the preparation of this report:

Mr. John McGinnis, Public Works Director, City of Plano

Mr. Darrin Boyer, Wastewater Treatment Plant Superintendent, City of Plano

effectively by rehabilitation. The cost-effective analysis for each source must compare the cost of rehabilitation versus the cost of transportation and treatment of the I&I contributed by that source.

Control of I&I in existing sanitary sewer systems is an essential part of sewer system management. A sewer system cannot be rehabilitated and then be expected to never develop additional points of I&I. Proper preventative maintenance programs must be established to monitor and control excessive I&I as an integral part of the rehabilitation program.[2]

2.1 Smoke Testing

2.1.1 Procedure

The smoke testing program was conducted by Walter E. Deuchler Associates (WEDA) in the study area shown in Exhibit A. The work was performed between May 30, 2006 and July 5, 2006 during dry weather conditions. Approximately 84,100 feet of sanitary sewers were smoke tested in approximately 20 working days, averaging 4,200 linear feet of sewer investigation per day.

Smoke testing is a viable and cost-effective procedure used to detect sources of inflow in the sewer system. It consists of blowing smoke, under pressure, into a sewer section, and observing the appearance of smoke at key locations. Key locations may be described as storm inlets, cross connections between storm and sanitary sewers, broken tiles, defective manholes, cracks in pavement, downspouts, and window wells around residential and business dwellings. A typical watertight sanitary sewer system will reveal smoke from the buildings' sanitary roof vents only. In many instances, the smoke will fail to exit sanitary roof vents because of bellies or pockets located in the public and/or private sewer. Such bellies or pockets serve as water traps preventing passage of smoke.

2.1.2 Results

The results of the smoke testing program are summarized and catalogued by street address and manhole number in Tables A-1 and A-2 of Appendix A. Common defects discovered as a result of the smoke testing program included downspouts directly connected to the sanitary sewer system, open cleanouts and potential defects to sanitary services and/or mains. Dwellings at 216 E. Abe, 202 N. Center, 703 E. North, 420 and 428 E. South, 417 N. West, and

was seen exiting numerous manhole structures from open pickholes. Open pickholes can contribute significant amounts of direct inflow to the sanitary sewer system during storm events, especially if located in a low bowl area. This can be easily remedied by replacing the existing lid with a new watertight solid lid having concealed pickholes.

Smoke was also seen exiting the ground surface surrounding numerous structures. This was usually indicative of chimney failures (cracking, deterioration, open joints, no mortar or butyl rope, etc.) and/or manholes constructed of brick/block material that were in poor condition (open joints, voids, deteriorating bricks/blocks, etc.). Depending on the severity of the defects, the chimney or manhole may either be sealed watertight from the inside or completely replaced. All sanitary manholes were subsequently inspected from the ground surface to determine the exact nature of the suspected defects. The manhole inspection results are further discussed in detail in Section 2.3.

2.2 Sewer Televising

2.2.1 Procedure

Walter E. Deuchler Associates, Inc. subcontracted the televising of the sanitary sewers to National Power Rodding Corporation, of Chicago, IL. Approximately 84,100 linear feet of sanitary sewers ranging in size from 6 to 21-inches in diameter were televised. A thorough review of the television tapes was performed by WEDA to verify the conditions of the existing sanitary sewers and to estimate the amount of infiltration entering the sanitary sewer system. Closed circuit televising has proven to be a reliable source for determining the most suitable methods to rehabilitate defective sewer sections. Structural defects, sags, sources of I&I, service connections, abnormal conditions and any other pertinent observations were identified and reported in the summary table in Appendix B. Copies of the sewer televising digital files and associated reports were previously provided to the City.

2.2.2 Results

Comments on the condition of each defective section of sewer and recommendations for a suitable method of rehabilitation are catalogued in an easy to read table format in Appendix B, which provides the following information:

a. Location and size of the sewer in need of repair.

recommended for this project.

Full Length Sewer Replacement: This work consists of replacing entire sections of vitrified clay pipe between manholes with PVC pipe. Seal-tight connections with the existing manhole can be achieved by coring a new hole into the existing manhole and installing a watertight rubber boot, or the connection may be cemented in with non-shrink grout. Services would be reinstated by installing new tees (or Inserta-Tees where applicable) and replacing with 6-inch PVC pipe to the R.O.W. line.

Spot Repairs: This work consists of replacing sections of vitrified clay pipe with PVC pipe. Seal-tight connections between PVC and VCP are achieved with non-shear couplings strapped with stainless steel heavy duty worm gear fasteners. Service connections, if applicable, would also be replaced with a PVC tee and reconnected with 6 inch PVC pipe to the ROW line.

Sewer Lining: This work consists of lining whole sections of pipe between manholes where replacement by the open-cut method is impractical or cost prohibitive. We recommend the installation of a cured-in-place pipe (CIPP) lining, such as the Insituform process or equal, because of its structural strength and known longevity.

Spot Liners: This work consists of lining short sections of pipe between manholes where replacement by the open-cut method is impractical or cost prohibitive. We recommend the installation of a cured-in-place pipe (CIPP) lining, such as LMK's Performance Liner process or equal, because of its structural strength, known longevity and inversion method of installation.

2.3 Manhole Inspection

2.3.1 Procedure

The sanitary manholes in the study area are numbered in accordance with the City of Plano Water and Sewer Department's numbering system and shown on Exhibit B. The purpose of the manhole inspection was to determine the physical condition and characteristics of each structure; and locate points of entry of infiltration and inflow.

Pursuant to the smoke testing program, WEDA personnel visually inspected each of the sanitary manholes from the ground surface to determine the physical condition and characteristics of each structure. The following information was recorded:

a. Manhole identification and location

A, B, and E): The work consists of removing the existing frame and masonry underneath the frame; and replacing the above with new concrete adjusting rings and a watertight frame set on butyl rope. Prior to backfilling, we recommend the installation of an external chimney seal, such as the Infi-Shield Uni-band or CANUSA Wrapid-Seal, around the adjusting rings and frame because of its ability to expand under frost heave conditions while maintaining its structural integrity to prevent infiltration and siltation from entering the manhole thru the chimney. The depth of the excavation is limited to 24 inches, which can be performed in and out of pavement.

Chimney Sealing (Repair Code Item C): The internal sealing of an existing chimney is specified where part of the masonry material underneath the frame is missing but still structurally sound. There are numerous manhole chimneys that have been found with watertight frames set over questionable masonry. We recommend filling all cavities, voids, crevices, etc. in the chimney with a non-shrinkable, quick-setting mortar flush with the inner surface of the existing frame.

Lid Replacement (Repair Code Item D): Many existing manhole covers were found with one or two open pickholes. Open pickholes can contribute a significant amount of direct inflow during storm events, especially in a low bowl area. At locations where the frame and chimney were found in good condition, we are recommending the replacement of the existing cover with one having a concealed pickhole lid.

Reset Existing Frame (Repair Code Item F): On some instances the manhole survey identified manholes with new watertight frames and covers set without proper bedding over the existing cone. Large gaps were discovered underneath the frame. This repair item calls for resetting the existing frame on butyl rope and compressing the rope to make the joint watertight. Prior to backfilling, we also recommend the installation of an external chimney seal, such as the Infi-Shield Uni-Band or CANUSA Wrapid-Seal, around the adjusting rings and existing frame because of its ability to expand under frost heave conditions while maintaining its structural integrity to prevent infiltration and siltation from entering the manhole thru the chimney.

Sealing of Pipes, Cracks and Openings (Repair Code Items K, L and N): There are a multitude of manholes that were found with minor defects. We have created three repair items that deal

with sand.

2.4 Building Inspection Survey

2.4.1 Procedure

The purpose of the building inspection survey (door-to-door canvassing) was to locate and identify those buildings with sump pumps that discharge storm water and/or groundwater directly to the sanitary sewer system. WEDA personnel performed a visual inspection of the plumbing to and from each unit in the study area. Also, the residents were surveyed to obtain historical information concerning the following: sanitary sewer backups, surface water runoff problems such as basement or yard flooding, and seepage problems through basement walls and floors.

A minimum of 3 attempts were made to contact property owners of each building. The first attempt was made during the week between the hours of 8:00 a.m. to 5:00 p.m. The second attempt was made on the weekend between the hours of 8:00 a.m. to 5:00 p.m. A third and final attempt was made at random during the week between the hours of 6:00 p.m. to 9:00 p.m. or on the weekend.

2.4.2 Definition of Terms

The following terms are used extensively throughout this section of the report.

Illegal Sump Pump - A well or sump in a basement which receives ground water from the buildings' footing tiles and discharges this water, with the use of a pump, directly into the building's sanitary sewer system (via sewer service, floor drain, utility sink, etc.). This may be accomplished by either of the following methods: 1.) Direct Connection - The status given an illegal sump pump when the discharge piping is directly connected to the sanitary sewer system, or 2.) Diverter Valve - The status given an illegal sump pump when the discharge piping is run through a series of valves that are used to control the discharge of the water - either pumped directly into the sanitary sewer system or redirected to another discharge point (ex. outside to a nearby drainage ditch).

Combination Sump Pump - In this case, a sump receives both groundwater (from the footing tiles) and water from utility sinks, laundry facilities, bathrooms and/or basement floor drains. This "combined" water is then pumped directly into the buildings' sanitary sewer

3.0 PRIVATE SANITARY SEWER SYSTEM

It has been our experience that the private sanitary sewer system presents a greater infiltration problem than that of the public sanitary sewer system. The seriousness lies in the difficulty of investigating, assessing and removing the infiltration on private property. The following are common sources of I&I located on private property.

3.1 Sanitary Services

Sanitary services are one of the greatest recipients of infiltration. Laterals are typically laid on virgin ground, in sections varying in length depending on the type of materials, with little care to make the joints water tight. The private services in the past were not subject to inspection procedures on a par with public sewers.

Private services have approximately 3.5 times as many joints (potential entry points for infiltration) as the public sewer. Experience shows that laterals are usually in good structural condition but poor from an infiltration standpoint. A common problem associated with laterals is the intrusion of roots from trees growing in residential front yards and parkways. Roots open the joints and provide a point of entry for infiltration.

It is well known that addressing the sealing of only the public sewer will do little to reduce infiltration. It is believed that much of the infiltration removed from the public sewer system by rehabilitation "migrates" to other points of entry that were either inactive or less active before rehabilitation. This phenomenon, known as migration, has led to discouraging results in other similar rehabilitation programs resulting in large discrepancies between anticipated and actual reduction of infiltration.[5] "Sanitary sewer rehabilitation has seldom resulted in the infiltration reduction projected by sewer system surveys. Migration of infiltration from rehabilitated to unrehabilitated sources was observed and documented under work carried out by the WSSC (Washington Suburban Sanitary Commission). Results of the study by the WSSC indicate that rehabilitation should be clustered in areas conducive to migration to achieve net flow reductions."[2] This is one of the reasons why rehabilitation work to reduce infiltration is rarely cost-effective.

3.3 Building Downspouts

A critical aspect of rainfall induced infiltration is the downspout extension pipe factor. For example, the smoke testing program identified several dwellings that have downspouts directly connected to the sanitary sewer system. There were also several other residential dwellings in the study area that have their downspouts discharging underground with unknown exit points. Unfortunately, the smoke testing program was unable to verify if these downspouts are directly connected to the sanitary sewer system via the buildings' footing drains. The smoke may have failed to exit the downspout connections because of bellies or pockets located in the footing drains which served as water traps preventing the passage of smoke.

The impact of direct inflow from downspouts has a significant impact on peak wet weather flows entering the downstream sewer system and can be quantified as follows:

- An average residential building has an exposed roof area of 1800 square feet.
- A 2-year, 1 hour intensity rain storm will precipitate 1.47 inches of rain which equals 0.0153 gpm/sq. ft.
- A single building with its downspouts discharging into the footing drain will contribute: 1800 sq. ft. x 0.0153 gpm/sq. ft. = 27.5 gpm for a 2-year storm.
- The number of single buildings of this size that would cause an 8 inch sanitary sewer, laid at minimum slope, to surcharge are: 12 buildings for a 2-year storm.

This short discussion in quantifying storm water flows from downspouts demonstrates how critical a program of downspout disconnection is needed to alleviate inflow. The property owners should be advised to extend their downspouts a minimum distance of ten (10) feet away from the building foundation and plug the connection to the sanitary sewer system at no expense to the City.

maintaining the integrity of the sewer system infrastructure.[2]

"This cost advantage is in addition to the benefit of maintaining existing flows and future capacities due to reduction of infiltration and inflow. The highest benefit/cost ratios are found in areas where the sewer corrosion potential is the highest. Deterioration rates in systems due to corrosion have been shown to decrease sewer life times from the normal 30-50 years to as low as 2-4 years in extreme cases and 9-14 years in moderate cases."[2]

As previously discussed, even though the 2002 Facility Plan Update indicated that it is more economical to transport and treat the I&I rather than identify and remove the sources from the collection system, it is our understanding that the City has committed itself to rehabilitate the sanitary sewer system. We agree with the City's decision for the following reasons:

1. The volume of inflow is excessive and detrimental to the overburdened downstream sanitary sewer system.
2. Continued exposure to excessive amounts of I&I will accelerate the weakening of the structural integrity of the existing sewer system resulting in premature replacement of sanitary sewers at a much greater cost than rehabilitation.
3. Reducing I&I in the overall collection system will reduce the frequency of sanitary sewer surcharging as well as reduce the following potential associated costs:
    a. Cost of damages to private property as a result of sewer surcharging,
    b. Operation and maintenance costs (labor and equipment required to by-pass pump potential sanitary sewer surcharges), and
    c. Excess costs to treat this extraneous flow at the wastewater treatment plant
4. Reducing I&I will also reduce potential public health and safety risks from sanitary sewer backups. Protecting wastewater collection and treatment systems with the least risk to public health and safety in the most cost-effective manner is the foal of any sewer rehabilitation program.[1]

We are therefore providing the City of Plano with a list of recommended actions which will greatly reduce the I&I problems and improve the structural integrity of the sanitary sewers for the purpose of prolonging the useful life of the sewer system.

4.2 Recommendations by City Staff

Some of the sewer lines recommended for full-length sewer replacement have been shown at the request of the City Public Works Department. Based on known operation and

8. The location of the sanitary sewer servicing the Reaper Center strip mall (former Weir Foundry) is not well known and in questionable condition. It is recommended that a new manhole be installed on the U.S. Route 34 sanitary sewer at the existing service tee location and a new, larger sanitary service line installed from this manhole to a new manhole set in front of the building. All work within the U.S. Route 34 R.O.W. would require coordination and permitting by IDOT. The remaining portions of the existing sanitary service would then be lined to reduce maintenance and improve flows.

City staff has also requested that the 15-inch vitrified clay tile sanitary sewer on South Street (U.S. Route 34) between Will and Hale Streets and the 15-inch sanitary sewer on Hale Street between South and Dearborn Streets be fully lined with a CIPP liner to reduce maintenance and avoid any future repairs. Both of these sewers are located under U.S. Route 34 and within IDOT R.O.W.

In addition to the previously listed sewers, it is our recommendation that the existing 6-inch sanitary sewer on N. Ben Street north of Main Street be replaced. Sewer televising revealed numerous root intrusions and a pipe in poor condition. The connection at the downstream manhole on Main Street also needs to be improved so that the entire Ben Street sanitary sewer can be laid directly out of the manhole and to the north. The sanitary sewer should also be increased in size to an 8-inch PVC pipe due to the numerous residential dwelling connections.

It should be noted that several manholes in the above mentioned areas that would be removed and replaced as part of the full-length sewer replacement are still listed in the Manhole Rehab Table in Appendix C. Depending on the scheduling of the recommended sanitary sewer replacement work, the manhole rehab work may need to be completed in advance in order to address miscellaneous I&I and structural issues.

4.3 Recommendations and Probable Costs

Design, construction, maintenance and rehabilitation of sanitary sewer infrastructures are important challenges. Because of their low visibility, wastewater collection facilities frequently get neglected until they suffer catastrophic failure, which may be inconvenient and costly to repair. The objective of sewer rehabilitation and facility improvements is to maintain the overall viability of the wastewater collection system. This is done by ensuring the systems structural integrity and limiting the loss of wastewater conveyance and transport capacity

ordinances. A responsible individual should be appointed to supervise the program for managerial, correspondence and quality control purposes.

a. There are eight (8) sump pumps (see Part 2.4.3 and Appendix D) found to be discharging extraneous flows into the wastewater collection system. The City should require the disconnection of these sump pumps immediately by the homeowner.

b. There are numerous cleanouts that require the installation of a watertight cap (see Part 2.1.2 and Appendix A). The City should require the immediate installation of this cap by the homeowner.

c. There are numerous dwellings with downspouts discharging into tiles directly connected to the sanitary sewer system (see Part 2.1.2 and Appendix A). The City should require the immediate extension of these downspouts a minimum distance of ten (10) feet away from the building and the plugging of the connection to the sanitary sewer system by the homeowner.

3. Upon completion of items (1) and (2) above, we recommend that the City of Plano perform post construction flow monitoring for the following reasons:

a. To develop a case study for determining the effectiveness of rehabilitation in reducing excessive I&I that can be applied to the overall sanitary sewer system.

b. To determine the level of protection in the existing sanitary sewer system achieved by the reduction of I&I through rehabilitation.

c. To model the sanitary sewer flows and prepare a cost/benefit analysis for various scenarios for upgrading the sewer system to various levels of protection should the reduction of I&I be inadequate to reduce sewer surcharging in the system.

4. Initiate a Sewer Maintenance Program for the purpose of ensuring structural integrity and to prevent gradual increases in I&I (if one does not currently exist). Sanitary sewers experience a variety of operational and maintenance problems which can be attributed to specific causes (roots, increased flows, siltation, blockages, etc.). These causes should be recorded in a data base so that the problem history of a sewer line or manhole can be correlated with the specific manhole number and/or sewer section. Sanitary and storm sewer systems require constant maintenance. Often times, sewer maintenance is performed on an emergency basis as a result of prolonged neglect (such as sewer backups) without envisioning long-term rehabilitation solutions. Some solutions would

Rehabilitation of Sanitary Sewers, including contingency (Appendix B)	$7,529,000.00
Rehabilitation of Sanitary Manholes, including contingency (Appendix C)	$461,000.00
SUBTOTAL	$7,990,000.00
Design and Construction Engineering (15%)	$1,199,000.00
TOTAL PROBABLE PROJECT COSTS	**$9,189,000.00**

4.4 Funding

It is likely that funding of the recommended rehabilitation work may not be readily available. Therefore, we recommend that the City of Plano look to other funding sources. Potential sources of funding which may be considered include interfund borrowing within the City budget, selling Municipal Bonds and applying for a loan from the State of Illinois Water Pollution Control Revolving Loan Fund.

Most of the improvements to the wastewater collection system, recommended as a result of the investigative study, should be eligible for a low interest loan from the State's Water Pollution Control Revolving Loan Fund. The greatest benefit of the loan program is its very low interest rate which is established annually at 50% of the Municipal Bond Buyer Index (currently in the range of 2.5% to 3%). The term of the loan cannot exceed 20 years and the City must provide the IEPA with a dedicated source of revenue to repay the loan. The loan program is very popular among municipalities because of the significant savings in interest payments to repay the loan and the wide range of wastewater projects that are eligible. For example, the yearly principal plus interest payment of an $8,000,000 sanitary sewer rehabilitation improvement at 3% interest is approximately $535,000 or a total payment of approximately $10,700,000 over the life of the 20-year loan. At a 5.5% rate for Municipal Bonds, the yearly repayment would be approximately $664,000 or a total reimbursement of $13,290,000 over 20 years: a saving of nearly $2,590,000.

Because of the significant savings in interest payments to repay the loan, the wide range of eligible wastewater projects, and the widespread popularity of the loan program, the IEPA administers the program on a priority system based on available funds received from the Federal government and loan repayments from previously issued loans. Based on the potential benefits to the overall system performance associated with this sewer rehabilitation project,

4.5 Time Schedule

Finally, we have prepared two (2) alternate schedules for the City's use in completing the recommended sewer rehabilitation depending on the funding source applied (self-funded by the City or through the State Loan Program)

Should the City of Plano decide to self-fund (i.e. budgeting, interfund borrowing, selling Municipal Bonds, etc.) the above sewer rehabilitation work, we recommend distributing the work over a four-year period (approximately $2,000,000 per year). Plans and specifications can be started during the late summer and early fall months, with the advertisement for bids following in early winter and construction starting by early spring. Construction would then be completed by November of the same year. As one phase is completed, the process begins again for the next phase as outlined in the following table:

Phase	Completion of Plans and Specs	Advertisement for Bids	Award Contract	Substantial Completion of Construction
1	by Jan. 1, 2013	by Feb. 1, 2013	by April 1, 2013	by Nov. 30, 2013
2	by Jan. 1, 2014	by Feb. 1, 2014	by April 1, 2014	by Nov. 30, 2014
3	by Jan. 1, 2015	by Feb. 1, 2015	by April 1, 2015	by Nov. 30, 2015
4	by Jan. 1, 2016	by Feb. 1, 2016	by April 1, 2016	by Nov. 30, 2016

Should the City of Plano decide to seek assistance from the State of Illinois Water Pollution Control Revolving Loan Fund, as stated previously, it would be in the best interest of the City to perform the rehabilitation of the entire sewer system under one loan due to the significant amount of administrative work required for each loan application. As discussed in detail in the previous section, there are numerous items that must be completed as part of the loan application package. The following is a tentative schedule for the completion of the rehabilitation of the City's wastewater collection system should they decide to use the loan program, however, the proposed project schedule is greatly dependent upon the amount of time it will take the Illinois Environmental Protection Agency (IEPA) to review and approve the Facility Plan/Engineering Report.

Facility Plan/Engineering Report submitted to IEPA by June 1, 2012

RESULTS OF SMOKE TESTING INVESTIGATION
TABLE A-1: DOWNSPOUTS/CLEANOUTS/TILES

LOCATION	DESCRIPTION OF PROBLEM	SUGGESTED CORRECTIVE WORK
111 W. Church	Smoke in ditch on east side of West Street from sanitary service	Advise Owner of potential plumbing problem with sanitary service for needed repair
701 N. Center	Open cleanout on back side of house	Advise Owner to install watertight cap on cleanout
202 N. Center	Smoke from poorly sealed downspout connection	Advise Owner to disconnect downspout from sanitary service and permanently plug tile watertight
604 N. Center	Smoke from attic vent on east side of house and outside pool bathroom area	Advise Owner of potential plumbing problem with sanitary service for needed repair
203 N. Center	Smoke from window well drain on south side of house	Advise Owner to disconnect window well drain from sanitary service
401 E. Sweetbriar	Cleanout in front of house smoked past cap	Advise Owner to install watertight cap on cleanout
309 E. Prairie	Smoke from cleanout in front yard	Advise Owner to install watertight cap on cleanout
501 E. Prairie	Smoke from cleanout in front yard, Sump pump drained in to cleanout	Advise Owner to install watertight cap on cleanout and disconnect sump pump from sanitary service
602 E. Lee	Smoke from around concrete slab at front cleanout and from cleanout at east side of house	Advise Owner to install watertight caps on cleanouts
610 E. Lee	Smoke from vent and from sump pump line into cleanout	Advise Owner to install watertight cap on cleanout and disconnect sump pump from sanitary service
301 S. West	Smoke from cleanout/clay tile on NW corner of house, possibly from window well on east side of house	Advise owner to either install watertight cap on cleanout or permanently plug tile watertight. Disconnect window well drain from sanitary service
707 N. West	Smoke in ditch from sanitary service	Advise Owner of potential plumbing problem with sanitary service for needed repair
417 N. West	Smoke from downspouts (3) into ground with cement cap at SW corner of house	Advise Owner to disconnect downspout from sanitary service and permanently plug tile watertight

LOCATION	DESCRIPTION OF PROBLEM	SUGGESTED CORRECTIVE WORK
120 N. Lew	Smoke from under porch	Advise Owner of potential plumbing problem with sanitary service for needed repair
526 E. Main	Smoke from cleanout/cistern area on SW side of house (low area)	Advise owner to either install watertight cap on cleanout or permanently plug cistern watertight
303 W. South	Smoke from open cleanout	Advise Owner to install watertight cap on cleanout
420 E. South	Smoke from back downspout and gutter (SE corner)	Advise Owner to disconnect downspout from sanitary service and permanently plug tile watertight
428 E. South	Smoke from downspout and gutter on east side of back building/garage	Advise Owner to disconnect downspout from sanitary service and permanently plug tile watertight
513 W. Corri	Smoke from ground in front yard parallel to ditch (10' x 20')	Advise Owner of potential plumbing problem with sanitary service for needed repair
514/510 W. Corri	Lot between houses, smoke in grass near R.O.W. line	Advise Owner of potential plumbing problem with sanitary service for needed repair
18 W. Dearborn	Smoke from open cleanout on side of house	Advise Owner to install watertight cap on cleanout
17 W. Dearborn	Smoke from cleanout in front of house	Advise Owner to install watertight cap on cleanout
118 W. Dearborn	Smoke from cleanout/clay tile on SE corner of front porch, smoke in grass between sidewalk and cleanout, and around cleanout	Advise Owner of potential plumbing problem with sanitary service for needed repair
6 W. Telling	Smoke from sinkhole at SE corner, attic vent, smoke from crawl space vent, Smoke along west side of house from crawl space	Advise Owner of potential plumbing problem with sanitary service for needed repair
318 S. Bill	Smoke from cleanout on NW corner of house	Advise Owner to install watertight cap on cleanout
215 W. Jones	Smoke from grass next to sidewalk in front of house	Advise Owner of potential plumbing problem with sanitary service for needed repair
114 W. Jones	Smoke from under porch	Advise Owner of potential plumbing problem with sanitary service for needed repair
317 W. Charles	Smoke from cleanout on east side of building	Advise Owner to install watertight cap on cleanout

RESULTS OF SMOKE TESTING INVESTIGATION

TABLE A-2: MANHOLES

MANHOLE NO.	DESCRIPTION OF PROBLEM	SUGGESTED CORRECTIVE WORK
N2-1A	Smoke around buried manhole	Raise manhole to grade – See Manhole Rehab Schedule in Appendix C
N2-46	Smoke from ground around manhole	Manhole to be replaced with sewer – See Manhole Rehab Schedule in Appendix C
N3-50	Smoke from ground around manhole	No work recommended
N3-16	Smoke from ground around manhole	No work recommended
N3-16A	Smoke from ground around manhole	No work recommended
N1-59	Smoke from ground around manhole	Manhole to be replaced with sewer – See Manhole Rehab Schedule in Appendix C
N1-60	Smoke from ground around manhole	Manhole to be replaced with sewer – See Manhole Rehab Schedule in Appendix C
N2-10	Smoke from pavement cracks next to manhole	Manhole to be replaced with sewer – See Manhole Rehab Schedule in Appendix C
N1-58	Smoke from edge/under pavement near manhole	Manhole to be replaced with sewer – See Manhole Rehab Schedule in Appendix C
N1-34	Smoke from curb and gutter joint and from behind curb near manhole	No work recommended
N1-12	Smoke from curb and gutter joint and from behind curb near manhole	Reset Existing Frame and Lid – See Manhole Rehab Schedule in Appendix C
N1-15	Smoke from gravel area 2' north of manhole	Replace manhole chimney– See Manhole Rehab Schedule in Appendix C

Full Length Sewer Replacement	8" Sewer Main	14,168	$200.00	$2,833,600.00
	10" Sewer Main	1,343	$225.00	$302,175.00
	12" Sewer Main	597	$250.00	$149,250.00
	15" Sewer Main	300	$275.00	$82,500.00
	6" x 8" Tee	248	$500.00	$124,000.00
	6" x 10" Tee	11	$550.00	$6,050.00
	6" Inserta Tees for sewers 12" and larger	8	$600.00	$4,800.00
	6" Sanitary Service	8,910	$100.00	$891,000.00
	4' Dia. Sanitary Manholes	63	$4,000.00	$252,000.00
			SUBTOTAL	$6,844,045.00
			CONTINGENCY (10%)	$684,404.50
			TOTAL PROBABLE CONSTRUCTION COSTS	**$7,528,449.50**

RESULTS OF BUILDING INSPECTION SURVEY
TABLE D-1

Study Area		Number	Percentage of Total
BUILDING SURVEY	Dwellings Visited	1287	100
	Vacant Homes	34	3
	Homes Available for Contact	1253	97
	Residents Contacted	501	40
	Answered Survey	495	40
	Visual Inspection Performed	490	39
	Refused Entry	5	1
	Resident Unavailable	752	60
SUMP PUMP SURVEY (see Exhibit D)		Number	Percentage of Contacted
	Dwellings without Sump Pumps	339	69.2
	Dwellings with Proper Sump Pumps	140	28.6
	Illegal Sump Pumps (direct & diverted)	8	1.6
	Combination Sump Pumps	0	0
	Septic Tanks	3	0.6
RESIDENT SURVEY		Number	Percentage of Contacted
	Experienced Sanitary Back-ups	30	6
	Experienced Yard Flooding	3	0.6
	Experienced Street Flooding	3	0.6
	Seepage into Basement	14	2.8
	Surface Runoff into Basement	18	3.6

Building inspection forms for each of the eight (8) dwellings identified as having an illegal sump pump connection to the sanitary sewer system are included in this Appendix.

Appendix D

City Code, Title 7- Water and Sewer, Chapter 2: Sewer Use and Service

include, and is distinguished from, inflow.

INFILTRATION/INFLOW: The total quantity of water from both infiltration and inflow without distinguishing the source.

INFLOW: The water discharged into a sewer system and service connections from such sources as, but not limited to, roof leaders, cellar, yard, and area drains, foundation drains, cooling water discharges, drains from sprints and swampy areas, manhole lids, cross connections from storm sewers and combined sewers, catchbasins, storm water, surface runoff, street wash waters or drainage. Inflow does not include, and is distinguished from, infiltration.

INSPECTION MANHOLE: Any accessible manhole that can be used for the purpose of inspection, sampling, and installation of flow meters, and not a control manhole.

INTERCEPTOR SEWER: A sewer whose primary purpose is to transport wastewater from collection sewers to a treatment facility or as otherwise defined by the USEPA.

MAJOR INDUSTRY: An industrial user that has (a) a flow greater than fifty thousand (50,000) gpd or more per average work day; or (b) has a flow greater than five percent (5%) of the flow carried by the Municipal system receiving its waste; or (c) has in its waste a toxic pollutant in a toxic amount as defined in standards issued under section 307 (a) of the Act; or (d) is found by the permit issuance authority in connection with the issuance of an NPDES permit to the publicly owned treatment works receiving the waste, to have significant impact whether singly or in combination with other contributing industries on that treatment works or upon the quality of effluent from that treatment works.

MILLIGRAMS PER LITER (mg/l): A unit of the concentration of water or wastewater constituent. It is 0.001 gram of the constituent in 1,000 ml of water. It has replaced the unit formerly used commonly, parts per million, to which it is approximately equivalent in reporting the results of water and wastewater analysis.

NPDES PERMIT: The National Pollutant Discharge Elimination System Permit that is issued by the USEPA setting the limits on constituents that the permittee may legally discharge.

NORMAL DOMESTIC SEWAGE: All household type discharge from places of human habitation including sanitary conveniences, kitchen and laundry wastes. Discharge waste strength shall be considered to average 200 mg/l BOD and 250 mg/l suspended solids at a discharge rate of one hundred (100) gallons per capita per day. This loading equates to 0.17 pounds of BOD and 0.21 pounds of suspended solids per capita per day.

pH: The term used to express the intensity of the acid or base condition of a solution, calculated by taking the logarithm of the reciprocal of the hydrogen ion concentration. The concentration is the weight of the hydrogen ion, in grams per liter of solution. Neutral water for example, has a hydrogen ion concentration of 10-7 and pH value of 7.

POPULATION EQUIVALENT (PE): A term used to evaluate the impact of industrial or other wastes on a treatment works or stream. One population equivalent of normal domestic sewage is one hundred (100) gallons per day, or 0.17 pounds of BOD, or 0.21 pounds of suspended solids. The impact on a treatment works is evaluated as the equivalent of the highest of the three (3) parameters. Impact on a stream is the higher of the BOD and suspended solids parameters.

PRETREATMENT: The treatment of industrial sewage from privately owned industrial sources prior to introduction of the waste effluent into a publicly owned treatment works, in accordance with 40 CFR, part

7-2-2: SEWER CONNECTION CHARGES:

A. Public Purpose: The public purpose is hereby declared to be, to provide for the collection and disposal of domestic and industrial waste in the manner provided by law for the area serviced by the city; to provide for the collection of a fair and reasonable charge, for connection to or additional use of the Plano wastewater treatment facilities, in addition to those charges covered by other revenue known as a connection fee. The funds thus collected shall be used by the city for its general corporate purposes with primary application thereof being made for the necessary construction, expansion, extension, maintenance and operating costs of the wastewater treatment facilities to meet the requirements of the new users thereof.

B. Application For Connection Permit And Inspection: No connection shall be made to any public sewer and no additional use shall be made of an existing connection thereto, until an application is properly completed and submitted to the city. Plans and specifications shall be submitted when requested for approval by the city and the charge paid in full by the applicant to the city prior to the connection. After a connection has been made pursuant to permit being issued as herein provided, the construction ditch shall be left open until the city has been notified of the connection and the city superintendent in charge or city engineer has inspected and approved the sewer construction and connection. (Ord. 1986-16, 9-22-1986)

C. Connection Fees And Unit Charges For Sewage Treatment Plant:

1. Each applicant for connection to or additional use of such sewers shall be given credit for the number of units then being served through an existing public sewer, at the time the reconstruction or remodeling of the building then served and/or to be served is commenced.

2. "Outlet" means each washbasin, water closet, urinal, shower or any similar plumbing fixture and orifice of any machine, vessel or tank of any kind, manifolded or singly through which waste may flow into the wastewater facilities.

3. For residential occupancy, the connection charge shall be one hundred twenty dollars ($120.00) per person ($120.00 per unit) with a minimum charge being three thousand dollars ($3,000.00) per residence.

4. For all purposes other than residential (except industrial), the connection charge shall be one hundred twenty dollars ($120.00) per person ($120.00 per unit) with the minimum charge being three thousand dollars ($3,000.00) per building connection. (Ord. 2003-17, 4-28-2003)

5. For all connections outside the City limits the connection charge shall be one and one-half ($1^1/_2$) times the rates herein listed.

Use Of Building	Number Of Units
Residential (Minimum Charge $350.00):	
Number Of Persons At Type Of Dwelling $100.00 Per Person	

		Food service capacity: Number Of Persons	
		0 _ 50	2
		50 _ 100	4
		100 _ 200	6
		Each private toilet:	
		With no more than 3 outlets	2
		Each additional outlet	1
		Each public toilet:	
		With no more than 3 outlets	3
		Each additional outlet	1
	Restaurant:		
		Food service capacity: Number Of Persons	
		0 _ 50	4
		50 _ 100	8
		100 _ 200	12
		Each private toilet:	
		With no more than 3 outlets	2
		Each additional outlet	1
		Each public toilet:	
		With no more than 3 outlets	3
		Each additional outlet	1
	Service station and garages:		
		Each public toilet:	
		With no more than 3 outlets	3
		Each additional outlet	1
		Wash rack	4
	Clubs, theaters and places of entertainment:		
		Each public toilet:	
		With no more than 3 outlets	3
		Each additional outlet	1
	Restaurant charge as above:		
		Each private toilet:	

		Each additional outlet	1

Nursing homes and hospitals: Resident capacity of each building determined from architect's plans and specifications multiplied by four (4).

Dormitories, fraternities and sororities: Resident capacity of each building determined by architect's plans and specifications multiplied by six (6).

Where a building does not fall under one of the above uses, the connection charges shall be determined by combining the applicable units under the various listings above and multiplying said sum by one hundred dollars ($100.00).

D. Industrial Charges: The industrial charge for new additional producers of industrial waste shall be determined as follows:

1. The city shall estimate the daily pounds of five (5) day biochemical oxygen demand (BOD), the daily pounds of suspended solids and the daily flow in gallons of the wastes of the industry discharged to the city sewer system of sewers tributary thereto.

2. The daily pounds of BOD so estimated shall be multiplied by six (6); the daily pounds of suspended solids so estimated shall be multiplied by five (5); the estimated daily gallons of flow shall be divided by one hundred (100); and these figures shall be averaged to determine the estimated population equivalent for the industry.

3. The estimated population equivalent of the industry determined as above shall be multiplied by one hundred dollars ($100.00) to determine the charge for the industry.

4. The minimum charge for a new industry, classified under division D in the standard industrial classification manual shall be seven hundred dollars ($700.00).

5. In the case of industry, each charge shall be reviewed by the city at the end of the first year of operation of said industry and adjusted on the basis of the annual operation experience and settlement of any additional charge therefor shall be made within three (3) months thereafter. (Ord. 1986-16, 9-22-1986)

E. Additional City Fees: To allow for the costs primarily attributable to new and additional users and because existing facilities were constructed at the expense of landowners heretofore connected, the following additional fees are based upon 1) distance from the sewage disposal system and 2) density use per acre and other reasonable factors. (Ord. 2001-8, 5-29-2001)

1. Preannexation Sewer Fee: Any land outside the city requiring sewer service that is contiguous to the city must be annexed to the city in order to utilize the city sewer service. An annexation sewer fee of two thousand four hundred dollars ($2,400.00) per acre shall be charged at the time of the approval of each final plat of subdivision for lands annexed into the city. Said funds shall be used to help pay the cost of excess capacities provided by the city in the sewage system. The charge of two thousand four hundred dollars ($2,400.00) per acre is based upon development of annexed and subdivided land at not to exceed a population equivalent of fifteen (15) people per acre. For each additional person per acre density, the charge shall be increased one hundred dollars ($100.00) per acre. (Ord. 2001-8, 5-29-2001; amd. Ord. 2006-15, 2-27-2006)

4. "Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition, three (3) copies of which shall be on file in the City Clerk's office.

5. "Recommended Standards for Sewage Works", Great Lakes-Upper Mississippi River Board of State Sanitary Engineers. (Ten State Standards), latest edition, three (3) copies of which shall be on file in the City Clerk's office.

D. Design Requirements:

1. Minimum Design Standard: The design and construction of sanitary sewers within the jurisdiction of the City shall conform to the most restrictive of the minimum standards contained in subsection C of this Section.

2. Design Slopes: Minimum design slopes shall be two percent (2%) for four inch (4") sewers and one percent (1%) for six inch (6") sewers with all other design slopes conforming to the requirements of paragraph D1 of this Section.

3. Manholes: Standard manholes shall be located as required in paragraph D1 of this Section, and for industrial building sewers at the point of connection to the public sewer system or other place of disposal. For residential and commercial buildings, the City Engineer shall determine the frequency and location of other manholes. In all cases, the maximum space between manholes on a six inch (6") building sewer shall not exceed two hundred feet (200').

E. Supplemental Design Requirements:

1. Plumbing: Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. In all buildings in which any building drain is too low to permit gravity flow to the building sewer, sanitary sewage carried by such building drain shall be lifted by an approved means and discharged to the building sewer. The basement floor shall be a minimum of three feet (3') above the crown of the receiving sewer for all gravity service connections.

2. Datum: Datum shall be as indicated by the U.S. Geological Survey.

3. Connection of Building Sewer to Sewer Mains:

a. Construction of building sewers and connections shall be in compliance with the terms and provisions of applicable City ordinances.

b. No sanitary sewer service from any building or structure shall be connected to the City's sanitary sewer system until the following construction has been completed:

(1) Grade or lower level floor or basement floor completed.

(2) Exterior walls completed including, where applicable, exterior sheathing.

(3) All windows in place including, where applicable, basement windows, if any.

(4) Roof completed including, where applicable, shingles.

(1) Installation of a manhole.

(2) Circular saw-cut of sewer main by proper tools ("sewer-tap" machine or similar), and proper installation of hub wye saddle or hub tee saddle.

(3) Using pipe cutter, neatly and accurately cut out desired length of pipe for insertion of proper fitting. Use "band-seal" or similar coupling, and shear rings and clamps to fasten the inserted fitting and hold it firmly in place.

4. Extension of Sewers:

a. To provide adequate sewer capacity for possible future connections, any building sewer to which future construction might possibly connect, will be treated as a sewer extension requiring, at a minimum, an eight inch (8") diameter pipe.

b. Extensions of the lateral system will be constructed so as to extend to the furthest point of the lot and shall be terminated at a manhole.

5. Before any sewer service shall be provided to premises either inside or outside the City, the part requesting said service shall comply with all current rules, regulations, standards, specifications and ordinances of the City of Plano, including provision of all improvements required therein or otherwise required by the City.

6. In order to prevent cross-connection of water and sewage systems, and to ensure City supervision of both systems, no sewer service shall be provided outside the City unless City water is also provided.

7. Unless otherwise decided by the City, all sanitary sewers and water mains, except services, shall become the property of the City. The City shall have the right to extend lines to serve others without obligation to the previous developer.

8. Infiltration: The maximum allowable infiltration shall in no case exceed two hundred gallons (200) per inch of diameter per mile of sewer per day and shall not be exceeded between any two (2) manholes. In addition, an air test of the same severity shall be required for all sewers.

9. T.V. Inspection: All sewers constructed under City or EPA permit (8" diameter or larger) shall be subject to closed circuit television inspection upon completion of the project sewer, witnessed by the Superintendent.

10. Request for Television Inspection: The City shall be notified by the applicant that the system is completed and properly cleaned and prepared for televising. Two (2) sets of the plan and profile drawings will be required by the City for the purpose of preparing the final T.V. report.

11. Repairs: All defects in materials and/or workmanship noted during inspection shall be repaired by the contractor before release is granted and the sewer accepted.

12. As-Built Drawings: After final inspection five (5) sets of as-built drawings shall be furnished to the City before final acceptance by the City.

13. Oversize Design: Where required by the City to conform with overall planning of future connections any sewer that is required larger than necessary to serve the immediate property adequately, an agreement may be made to repay the owner or subdivider the construction cost resulting from the increased design.

said person, he may apply to the City for variance from this Section. Such application shall state in detail the circumstances which are claimed to cause said economic hardship. Such exemptions shall only be granted to residential users and shall not apply to commercial and industrial users.

3. At such times as a public sewer becomes available to a property served by a private sewage disposal system, a direct connection shall be made to the sanitary sewer system within sixty (60) days in compliance with this Chapter, and any septic tanks, cesspools or similar private sewage disposal facilities shall be cleaned of sludge and filled with a suitable material. "Available" shall be defined herein to mean within a distance of one hundred feet (100') from said property.

C. Monitoring Requirements:

1. Any connected source, for which the City has determined it to be necessary because of volume of flow and strength or characteristics of the waste, will be required to install and maintain a control manhole or sampling chamber on each line of discharge to measure and sample the wastewater, at the owner's expense. Permanent, reliable monitoring equipment shall be installed for all sampling chambers; temporary or portable equipment shall be installed for all control manholes. Flow measurement shall be recorded on a twenty four (24) hour/day basis, seven (7) days/week/quarterly periods. Sampling shall be done as prescribed by the City to insure representative quantities for the entire reporting period.

2. For each day that the monitoring station is operable, and sampling is required, personnel will pick up the collected samples, read the flow meter, and visually inspect the system. Analysis of the collected samples will be done by a certified lab at owner's expense. Any samples obtained shall be made available to City personnel as requested.

3. During periods of equipment breakdown, malfunction or any other reason, the highest daily values obtained during the previous ninety (90) days may be applied to each day not monitored.

4. Maintenance of the equipment and operation of the station will be the sole responsibility of the owner.

D. Limitations and Charges:

1. The City shall annually determine and declare the user charge and industrial user surcharge costs for the handling of domestic and nondomestic pollutants. Table A shall be used to establish the maximum concentration of pollutants that can be discharged. Table B shall be used to determine the charges for pollutants which are in excess of those found in normal domestic wastes.

TABLE A

Pollutant	Storet Number	Maximum Concentration Allowed (mg/l)
Ammonia nitrogen as N	00610	10.00
Arsenic (total)	01002	0.75
Barium (total)	01007	6.00
BOD	00310	200.00
Boron (total)	01020	3.00

TABLE B

Pollutant	Concentration-Domestic Wastewater	Surcharge
Biochemical oxygen demand (BOD)	200 mg/l	See user charge rate ord.
Suspended solids	250 mg/l	See user charge rate ord.

2. Compliance with the numerical standards listed in Tables A and B shall be determined on the basis of twenty-four (24) hour composite samples averaged over any consecutive thirty (30) day period. In addition, no more than five percent (5%) of the samples collected shall exceed two and one-half ($2^1/_2$) times the numerical limits prescribed in the above tables.

3. The following described substances, materials, waters or wastes shall be restricted in discharges to Municipal systems to concentrations or quantities which will not harm either the sewers, wastewater treatment processes or equipment, will not have an adverse effect of the receiving stream, or will not otherwise endanger lives, limb, public property, or constitute a nuisance. The City will set limitations lower than the limitations established in the regulations below if such more severe limitations are necessary to meet the above objectives. In determining the acceptability of a waste, the City will give consideration to such factors as the quantity of subject waste in relation to flows and velocities in the sewers, materials of construction of the sewers, the wastewater treatment plant, degree of treatability of the waste in the wastewater treatment plant, and other pertinent factors. The limitations or restrictions on materials or characteristics of waste or wastewaters discharged to the sanitary sewer which shall not be violated are as follows:

a. Any wastewater or liquid containing petroleum oils, cutting oils, gasoline, benzene, naphtha, fuel oil, products of mineral oil origin or any other flammable or explosive liquid.

b. Any garbage that has not been properly shredded. Garbage grinders may be connected to sanitary sewers from homes, hotels, institutions, restaurants, hospitals, catering establishments or similar places where garbage originates from the preparation of food in kitchens for the purpose of consumption on the premises or when served by caterers.

c. Any waters or wastes containing iron, chromium, copper, zinc or similar objectionable or toxic substances to such degree that any such material received in the composite wastewater at the wastewater treatment works exceeds the limits established by the City for such materials.

d. Any waters or wastes containing odor producing substances exceeding limits which may be established by the City.

e. Quantities of flow, concentrations, or both which constitute a "slug" as defined herein.

f. Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers, or other interference with the proper operation of the wastewater facilities such as, but not limited to ashes, bones, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails and paper dishes, cups, milk containers, either whole or ground by garbage grinders.

and wastes in violation of, or without complying with, those regulations. Copies of such regulations shall be kept on file in the City's office for inspection. The reference books referred to by the Federal Register are as follows:

a. Standard Methods: Shall mean "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association, latest edition, three (3) copies of which are on file in the City Clerk's office.

b. American Society of Testing Materials: Shall mean Annual Book Standards, part 23, Water, Atmospheric Analyses, 1972, available from American Society of Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania, 19103.

c. EPA Methods: Shall mean Methods for Chemical Analyses of Water Wastes, EPA, Analytical Quality Control Laboratory, Cincinnati, Ohio. This publication available from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402 (Stock #5501-0067).

G. Sewer Discharge Permits:

1. Requirements, General:

a. Any connected source, discharging a waste to the sewerage system which exceeds one or more of the limits set forth in Table A (subsection D1), or which discharges twenty five thousand (25,000) gallons or more per day, is required to obtain a sewer discharge permit.

b. Any connected source which is required to obtain a sewer discharge permit will, along with the completed application forms, furnish the City with plans, specifications for treatment works, summaries of design criteria and any other information as the City may reasonably require in order to determine that the discharge or proposed discharge will be in compliance with all applicable requirements.

c. There shall be no fee for sewer discharge permits.

d. An applicant for a sewer discharge permit shall file an application in accordance with paragraph G2 hereof, on forms provided by the City. Such forms shall comprise the sewer discharge application forms promulgated by the City for the type of discharge for which a sewer discharge permit is being sought and such additional information as the City may reasonably require.

2. Application:

a. All applications for a sewer discharge permit as required in paragraph G1 shall contain, where appropriate, the following information and documents:

(1) A complete description of the volume and nature of the wastewater to be treated, transported or discharged, including a statement as to presence or absence of all pollutants for which discharge water quality standards are set by this Section.

(2) A statement as to any projected changes in the volume or nature of the wastewater which the applicant desires to have included within the terms of the permit.

(6) A grant of a variance by the City may set forth such conditions, exceptions, time limitations, durations and expirations as the City Council deems necessary and proper.

5. Permit Removal: Any permittee who wishes to continue to discharge after the expiration date of his sewer discharge permit shall apply for reissuance of the permit not less than ninety (90) days prior to the expiration date of the permit. Prior to renewal, the City shall determine:

a. That the permittee is in compliance with or has substantially complied with all terms, conditions, requirements and schedules of compliance of the expiring sewer discharge permit.

b. That the City has up-to-date information on the permittee's waste treatment practices, the nature, contents and frequency of the permittee's discharge, either pursuant to the submission of new forms and applications or pursuant to monitoring records and reports submitted to the City by the permittee.

c. That the discharge is consistent with applicable standards and requirements during the term of the permit.

6. Authority to Deny Permits: No sewer discharge permit may be issued in any case in which:

a. The permit would authorize the discharge of a radiological, chemical or biological warfare agent or high level radioactive waste.

b. The proposed permit is objected to in writing by the administrator of the U.S. Environmental Protection Agency pursuant to any right to object given to the administrator under section 402(d) of the Federal Water Pollution Control Administration.

c. The applicant has not provided proof to the City that he will meet any of the schedules of compliance which may be established in accordance with this Chapter as a condition of his permit.

d. Any applicant whose discharge of material to the sewer system whether shown upon the application, or determined after inspection and testing by the City, is not in conformance with Federal, State or City laws, ordinances or rules and regulations unless a variance of such standards and requirements is granted by the City. The City Council shall state the reason or reasons for denial, or requirement for variance in writing, mailed or personally delivered to the applicant within five (5) days after denial.

H. Access to Facilities and Further Information: If the City determines that either further information or a site visit is necessary for the City to evaluate a sewer discharge permit application, it shall notify the applicant and make arrangements to secure the additional information or make a site visit. If adequate information is not received within the period of time specified by the City, the permit shall either be issued on the basis of the information currently before the City or be denied, and the applicant so notified. (Ord. 1986-16, 9-22-86)

The City Engineer and other duly authorized employees of the City, the Illinois Environmental Protection Agency and USEPA, bearing proper credentials and identification, shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling, and testing in accordance with the provisions of this Chapter. The City Engineer or his representative shall have no authority to inquire into any processes, including metallurgical, chemical, oil refining, ceramic, paper or other industries beyond that point having a direct bearing on the kind and source of discharge to the sewers or waterway or facilities for waste treatment. (Ord. 1986-23, 12-8-86)

Appendix E

City Code, Title 7- Water and Sewer, Chapter 4: Rates and Charges for Use of Combined Waterworks and Sewerage System

SENIOR CITIZENS' (AGE 62 AND OVER) WATER
AND SEWER BIMONTHLY RATES/CHARGES

		Water	Sewer[1]
March 1, 2011, through February 29, 2012 (bill issued May 1, 2011, or thereafter):			
	First 4,000 gallons (minimum charge)	$14.42	$23.69
	Over 4,000 gallons - per 1,000 gallons, or part thereof	3.11	3.87
March 1, 2012, through February 28, 2013 (bill issued May 1, 2012, or thereafter):			
	First 4,000 gallons (minimum charge)	14.85	24.40
	Over 4,000 gallons - per 1,000 gallons, or part thereof	3.55	4.57
March 1, 2013, through February 28, 2014 (bill issued May 1, 2013, or thereafter):			
	First 4,000 gallons (minimum charge)	15.30	25.13
	Over 4,000 gallons - per 1,000 gallons, or part thereof	4.05	5.26
March 1, 2014, through February 28, 2015 (bill issued May 1, 2014, or thereafter):			
	First 4,000 gallons (minimum charge)	15.30	25.13
	Over 4,000 gallons - per 1,000 gallons, or part thereof	4.05	5.26
March 1, 2015, through February 29, 2016 (bill issued May 1, 2015, or thereafter):			
	First 4,000 gallons (minimum charge)	16.23	26.66
	Over 4,000 gallons - per 1,000 gallons, or part thereof	5.18	5.74
March 1, 2016, through February 28, 2017 (bill issued May 1, 2016, or thereafter):			
	First 4,000 gallons (minimum charge)	16.72	27.46
	Over 4,000 gallons - per 1,000 gallons, or part thereof	5.85	5.97

1. The rates and charges for sewer service are based upon the number of gallons of water used.

(Ord. 2011-1, 1-10-2011; amd. Ord. 2014-9, 3-24-2014; Ord. 2014-12, 4-14-2014)

B. Rates Commencing March 1, 2017: In the event that the city council has not taken action to amend or revise by ordinance the water and sewer rates set forth above, the rates or charges set forth for the period March 1, 2016 through February 28, 2017, in subsection A of this section shall apply commencing March 1, 2017 and thereafter. (Ord. 2011-1, 1-10-2011)

C. Qualifications For Senior Citizens' Rates And Charges: To qualify for the senior citizens' (age 62 and over) rates and charges, the user must present to the city clerk evidence of the following:

1. Age (62 years of age or older);

2. Proof of residence in the city of Plano, Illinois;

3. Proof of occupancy of the residence in the city of Plano, Illinois.

Proof of age shall be in the form of a birth certificate, a valid Illinois driver's license showing the Plano residence address or a current Illinois issued picture identification showing the Plano residence address.

delinquent water charges at the former location is made. A charge of fifty dollars ($50.00) for turning on water and renewing service shall be made, in addition to the payment of the delinquent water charges.

D. Rates for services described herein shall be applicable for all services supplied, at the specified rates, as more fully set forth in this chapter, and as amended from time to time. (Ord. 2004-26, 6-28-2004)

7-4-3: DELINQUENT PAYMENTS:

A. In the event the charges for the service are not paid when due, such charges shall be deemed and are hereby declared to be delinquent, and thereafter such delinquencies shall constitute liens upon the real estate for which such service is supplied, and the city clerk is hereby authorized and directed to file sworn statements showing such delinquencies in the office of the recorder of deeds of Kendall County, Illinois, and the filing of such statements shall be deemed notice for the payment of such charges for such service. (Ord. 1993-18, 6-28-1993)

B. If the rates or charges for service are not paid when due, such service shall be discontinued in accordance with the termination procedures set forth in chapter 6 of this title, and such service shall not be reinstated until all past due bills, including all penalties thereon, shall be paid in full together with a reinstatement charge of a minimum of fifty dollars ($50.00) for reinstating such service. (Ord. 1993-18, 6-28-1993; amd. Ord. 2004-26, 6-28-2004)

7-4-4: RENDITION OF BILLS:

It is hereby made the duty of the city collector or, in her absence, the city clerk, to render bills for service and for all rates and charges, including penalties, in connection therewith and to collect all monies due thereon. In the event a bill for services hereunder remains unpaid and is thereafter submitted to a collection agency or collection service for collection, then there shall be added to said bill the sum of twenty dollars ($20.00) representing a collection fee. Furthermore, in the event that a check received by the city in payment of the charges imposed by this chapter is returned for insufficient funds or by reason of the account upon which the same is drawn being closed, an additional service charge of twenty five dollars ($25.00) shall be added to the unpaid bill. (Ord. 1988-13, 6-13-1988; amd. 1989 Code; Ord. 2004-26, 6-28-2004)

7-4-5: DISPOSITION OF FUNDS:

A. All revenues and monies derived from the operation of the combined waterworks and sewerage system shall be held by the city collector separate and apart from his private funds and separate and apart from all other funds of the city, and all of said sums, without any deductions whatsoever, shall be delivered to the city treasurer not more than ten (10) days after receipt of the same, or at such more frequent intervals as may from time to time be directed by the city council. (Ord. 1988-13, 6-13-1988; amd. 1989 Code)

B. The city treasurer shall receive all such revenues from the combined waterworks and sewerage system and all other funds and monies incident to the operation of such system as the same may be delivered to him and deposit the same in a separate fund designated as the "waterworks and sewerage fund of the city of Plano", and said treasurer shall administer such fund in every respect in the manner provided by law. (Ord. 1988-13, 6-13-1988)

7-4-6: BOOKS AND ACCOUNTS:

Appendix F

City Code, Title 7- Water and Sewer, Chapter 6: Sewer User Charges

installed in a sampling manhole and capable of taking flow proportioned wastewater samples over a continuous twenty four (24) hour period.

FLAT RATE ESTIMATES: The water estimated to be used, or to have been used, by a structure not equipped with a water meter. Such estimate shall be based upon the City's analysis of comparable structures with similar uses and similar number of occupants.

FLOW METER: A fluid measuring device approved by the City capable of being installed in a sampling manhole and capable of registering continuous flow rates over a seven (7) day period.

INFILTRATION: Extraneous waters entering a sewer system.

INFLOW: Extraneous waters discharged into a sewer system. (Ord. 1986-17, 9-22-86)

INDUSTRIAL USER: All users as defined in Section 7-2-1 of this Title.

INDUSTRIAL WASTE: The wastewater from industrial processes, trade, or business as distinct from domestic or sanitary waste. (Ord. 1986-18, 9-22-86)

MAINTENANCE: All manner of activity necessary including labor, supply, contract repair work and administration requirements to maintain the works assets and property of the City for the purpose of insuring its continued and uninterrupted operation.

NONINDUSTRIAL USER: All users not specifically defined as industrial users, and shall include the following defined categories:

A. Commercial User: Includes transit loading, retail and wholesale establishments or places engaged in selling merchandise or rendering services.

B. Institutional/Governmental User: Includes schools, churches, penal institutions, and users associated with Federal, State and local governments.

C. Residential User: All dwelling units such as houses, mobile homes, apartments, permanent multi-family dwellings. (Ord. 1986-17, 9-22-86)

NORMAL DOMESTIC WASTE: All household type of discharges from places of human habitation including sanitary conveniences, kitchen and laundry wastes. Discharge waste strength shall be considered to average 200 mg/l BOD and 250 mg/l suspended solids at a discharge rate of one hundred (100) gallons per capita per day. This loading equates to 0.17 pounds of BOD and 0.21 pounds of suspended solids per capita per day. (Ord. 1986-18, 9-22-86)

OPERATION: All manner of activity necessary including labor, electrical power, fuel chemicals, supplies and administrative requirements properly to conduct the functions of collection, conveyance, treatment and disposal of wastewater generated within the City.

PRIVATE WATER METER: An existing water meter or a meter required to be installed by this Chapter on any privately owned water supply.

PUBLIC WATER METER: The water meter installed within the water piping system of any building by a municipality as defined in section 35.905-14 having jurisdiction over water supplies.

7-6-7: DECLARATION OF COSTS:

Not less than biennially, the City Council shall determine and declare for purposes of adopting or amending the user charge rate ordinance, the following:

A. The projected yearly costs of operation, maintenance, and replacement of the proportion of the works of the system attributable to wastewater volume (flow).

B. The projected yearly costs of operation, maintenance, and replacement of the proportion of the works of the system attributable to BOD and suspended solids (strength).

7-6-8: DECLARATION OF USE:

A. Not less than biennially, the City Council shall determine and declare for purposes of adopting or amending the user charge rate ordinance, the use based on volume (and percentage of total thereof) obtained by the addition of the total wastes discharged as determined in subsection 7-6-6D above.

B. Similarly, the City Council shall determine and declare the use based on strength (and percentage of total thereof) obtained by multiplying the yearly total quantities of BOD and suspended solids (determined in subsection 7-6-6E above) by the percentage of total wastewater discharged (determined in subsection 7-6-6D above).

7-6-9: DECLARATION OF COST DISTRIBUTION:

A. Not less than biennially the City Council shall determine and declare for purposes of adopting or amending the user charge rate ordinance, the distribution of costs obtained by multiplying the waste flow-related costs determined in subsection 7-6-7A above by the percentage of use based on volume for each category as determined in subsection 7-6-8A above.

B. Similarly, the City shall determine and declare the distribution of costs obtained by multiplying the waste strength-related costs determined in subsection 7-6-7B above by the percentage of use based on strength for each category as determined in subsection 7-6-8A above.

C. The sum of the costs obtained in subsections A and B above shall constitute the total operation, maintenance, and replacement cost for the forthcoming fiscal year, and shall be declared as such by the City Council in the user charge rate ordinance.

7-6-10: USER RATES, UNIT COSTS:

Not less than annually, the City Council shall further determine the user charge cost per unit of measurement applicable to each user as follows:

A. The user charge unit costs shall be calculated by dividing the yearly total operation, maintenance, and replacement costs (determined in subsection 7-6-9C above) by the total water used (the sum of subsections 7-6-6A and 6B above) and shall be expressed in dollars per thousand gallons ($/1,000 gal.) of water use.

deposit the same in the account of the fund designated as the "Sewerage Fund of the City of Plano". Said Treasurer shall administer such Fund in every respect in the manner provided by statute.

7-6-14: ACCOUNTS:

The City Treasurer shall establish a proper system of accounts and shall keep proper books, records and accounts in which complete and correct entries shall be made of all transactions relative to the sewerage system, and at regular annual intervals she shall cause to be made an audit by an independent auditing concern of the books to show the receipts and disbursements of the sewerage system.

In addition to the customary operating statements, the annual audit report shall also reflect the revenues and operating expenses of the wastewater facilities, including a replacement cost, to indicate that sewer service charges under the waste cost recovery system and capital amounts required to be recovered under the industrial cost recovery system do in fact meet these regulations. In this report, the financial information to be shown in the audit report shall include the following:

A. Flow data showing total gallons received at the wastewater plant for current fiscal year.

B. Billing data to show total number of gallons billed per fiscal year.

C. Debt service for the next succeeding fiscal year.

D. Number of users connected to the system.

E. Number of nonmetered users.

F. A list of users discharging nondomestic and industrial wastes and volume of waste discharged.

7-6-15: NOTICE OF RATES; RATES ESTABLISHED:

A. Each user will be notified at least annually, in conjunction with a regular bill, of the rate and that portion of the user charges which are attributable to wastewater treatment services. (Ord. 1986-17, 9-22-1986)

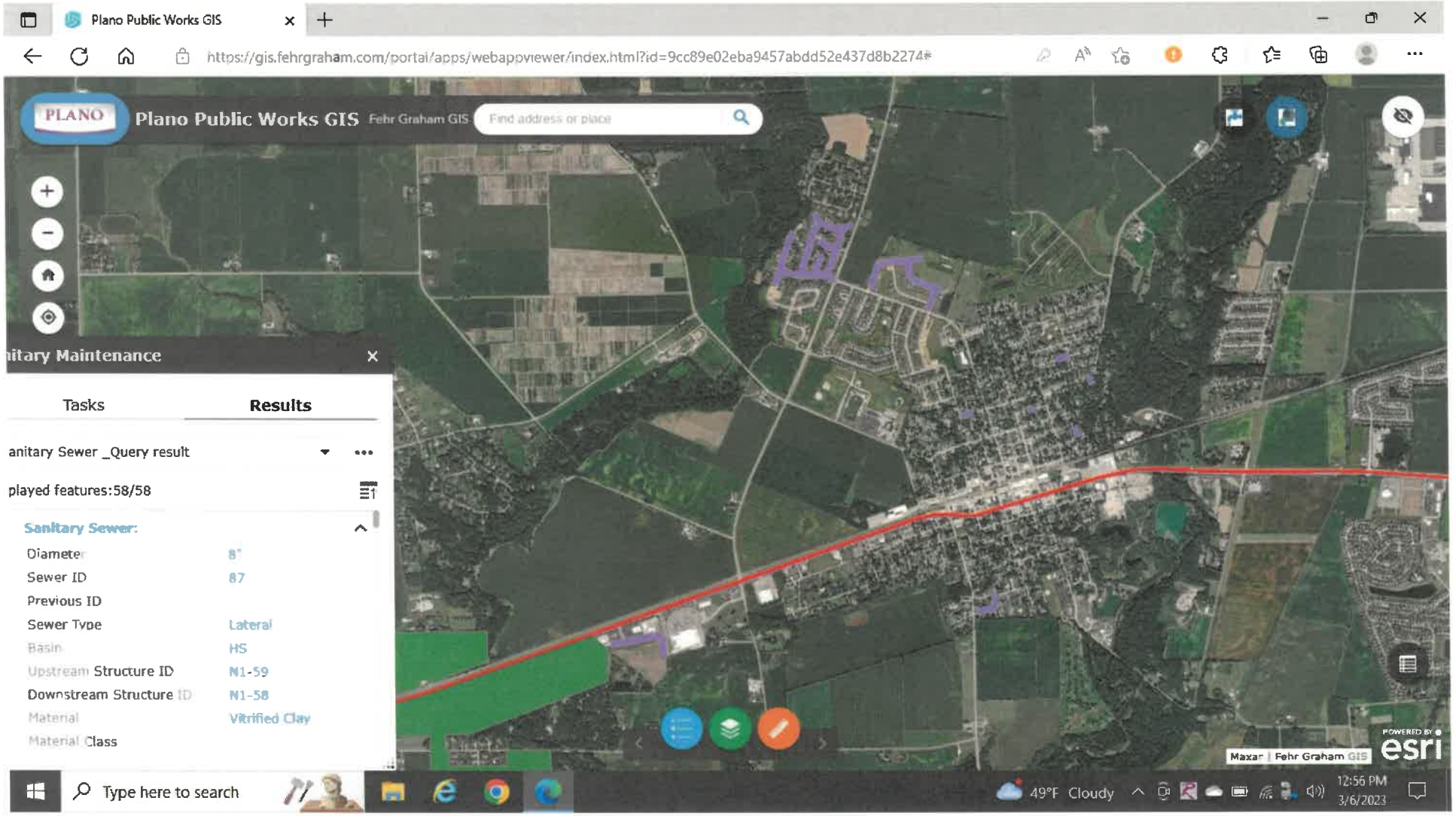
B. Until such time as rescinded by amendment, there is imposed upon all users of the service of the city, including, without limitation, all users of the sewers which are tributary to the system, a user charge rate as set forth in section 7-4-1 of this title.

C. Until such time as rescinded by amendment, there is imposed upon all industrial users of the service of the city system, including, without limitation, all industrial users of the sewers which are tributary to the system, a user surcharge rate which shall be as follows:

$0.37 per pound of BOD over and above normal domestic waste and $0.33 per pound of suspended solids over and above normal domestic waste. (Ord. 1986-18, 9-22-1986)

7-6-16: INSTALLATION OF SAMPLING MANHOLES, FLOW METERS AND COMPOSITE SAMPLERS:

After the effective date hereof, each industrial user and certain commercial users, where required by the city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Date:_
are delinquent and service will be disconnected on
Date:_

B. Reinstatement Of Service: In the event of severance of service, the service may be reinstated upon payment to the city of the full delinquency, plus service charges and the cost to the city of the disconnection of the building service line to the works of the system. Such reconnection costs (minimum charge $50.00); plus inspection fees for the city in accordance with city ordinances, shall be at the sole expense of the user.

C. Effective Date Of Rates: Rates for services described herein shall be applicable for all services supplied, at the specified rates, as more fully set forth in this chapter, as amended from time to time. (Ord. 2004-26, 6-28-2004)

7-6-20: INSPECTION AND METER READING ON PRIVATE PROPERTY:

From and after the effective date hereof, the city shall have the right to enter upon private property to take water meter readings and to take flow meter readings and composite samples from meters and samplers installed therein. In the event of a refusal to permit city personnel upon private property, they shall seek the assistance of the police department and shall make the inspection accompanied by such officer. Failure to permit such meter readings to be made shall constitute grounds for termination of service. (Ord. 1986-17, 9-22-1986)

7-6-21: USER CHARGE RATE ORDINANCE AMENDMENTS:

The city council, may at any time amend and increase the aforesaid charges to provide additional revenue to defer costs not known or anticipated at the time of preparation of the latest estimate of anticipated costs; except, however, if at such time as the council has determined that funds allocated in the latest estimate of anticipated costs will not be expended for items originally intended, either in full or in part, the unexpended funds may be allocated to the new or increased cost to the extent possible before increasing the charges theretofore established. User charge rate ordinance amendments shall be implemented and reflected in the next subsequent billing. (Ord. 1986-17, 9-22-1986)

7-6-22: CONNECTION CHARGES:

Connection charges shall continue to be collected in the manner provided for in the ordinances of the city. (Ord. 1986-17, 9-22-1986)

7-6-23: ACCESS TO RECORDS:

The USEPA, or its authorized representative, shall have access to any books, documents, papers and records of the city which are applicable to the city system of user charges for the purpose of making audit, examination, excerpts and transcriptions thereof to ensure compliance with the terms of the federal regulations and conditions of the federal grant. (Ord. 1986-17, 9-22-1986)

Illinois Environmental Protection Agency

Bureau of Water • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Sanitary Sewer Overflow or Bypass Notification Summary Report

- Within 24 hours of the occurrence, notify the Illinois EPA regional wastewater staff by telephone, FAX, email or voice mail, if staff are unavailable.
- Within 5 days of the occurrence, provide a written report describing the overflow or bypass, including all information requested on this form. The permittee is required to submit this form or other equivalent written notification to the Illinois EPA at:

Bureau of Water/Compliance Assurance Section - MC #19
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

NOTE: You may complete this form online, save a copy locally, print, sign and submit it to the BOW/CAS MC #19, at the above address. You may also print the form before completing it by hand, signing and submitting it.

Failure to notify the Illinois EPA as specified may result in fines up to $10,000 for each day of violation.

Instructions: Use this form to report all unscheduled sanitary sewer overflow or bypass occurrences. Attach additional information as necessary to explain or document the overflow or bypass. For the purpose of this report, an overflow or bypass is defined as the discharge of untreated sewage from the sanitary sewer collection system to a surface water and/or ground due to circumstances such as those identified by the check boxes in the overflow or bypass details section of this form.

Use one form per occurrence. A single occurrence may be more than one day if the circumstances causing the overflow or bypass results in a discharge duration of more than 24 hours. If there is a stop and restart of the overflow or bypass within 24 hours, but it is caused by the same circumstances, report it as one occurrence. If the discharges are separated by more than 24 hours, they should be reported as separate occurrences.

24 Hour Notification Information

Permittee (Municipality or Facility Name): _____ Permit Number: _____ Person Representing Permittee Who Contacted IEPA: _____

Date: _____ Time: _____ AM ☐ PM ☐ IEPA Office Contacted: _____ Name of IEPA Employee Contacted: _____

Sanitary Sewer Overflow or Bypass Details

Date and Duration of Overflow or Bypass Occurrence (complete a separate form for each occurrence):

Start Date: _____ Time: _____ AM ☐ PM ☐ Duration of the overflow or bypass (hours and minutes): _____

Estimated Volume of Wastewater Discharged (gallons): _____

WWTP Flow During bypass (report in MGD): Not applicable for a collection system SSO. _____

Location of the Overflow or Bypass: _____

Circumstances Causing the Overflow or Bypass (check all that apply)

☐ Rain ☐ Power Outage ☐ Equipment Failure ☐ Other (explain below)

☐ Snow Melt ☐ Broken Sewer ☐ Widespread Flooding

Provide a narrative description to further explain why the overflow or bypass occurred. For example, describe what equipment failed. What caused the power outage, or what plugged the sewer. Flooding should only be indicated, as a cause if there is significant flooding that is caused by high river, stream, or lake water levels, not just localized high water in the street.

Appendix H

City of Plano Organizational Chart