

Collection System Controls

These are controls that are conducted on the system once the storm runoff and pollutants enter the system. The controls under this heading may reduce CSO volume and frequency by removing or diverting runoff, maximizing the inflow storage and increasing the flow that is convey to the WWTP. Controls that would typify this would include sewer separation, I&I control, and flow diversion. The following are the selected Collection System Controls for the City of Clyde LTCP;

- **Sewer Cleaning Program.** *The City of Clyde contracts out sewer flushing and rodding work. The sewer system, as part of the maintenance schedule, is divided into ten (10) subareas. All the sewers are thoroughly cleaned every two (2) years. known problem areas, where frequent sedimentation occurs, are cleaned more frequently to prevent potential problems.*
- **CSO Facilities Maintenance.** The WWTP personnel have the responsibility of monitoring the CSO screening facility. The CSO is monitored and recorded each time an overflow event occurs and the required sampling is completed. A flow monitor located at the discharge of the screening facility records the flow and duration of each CSO event.
- **Sewer Separation Projects.** *Sewer Separation consists of converting a portion of the combined sewer system into separate storm and sanitary sewers. Sewer separation projects have historically been used in an attempt to eliminate CSOs or to minimize the frequency and duration of their occurrences. Other benefits of sewer separation include relieving areas that may surcharge, increase inline storage, and maximization of sanitary flows to treatment. The following sewer separation improvements have contributed to the present operations of the Clyde Sewer System. In addition these projects have minimized the wet weather flows within the system, maximized the in-line storage capacity and have regionalized many CSOs (six CSOs have been consolidated down to one);*

YEAR COMPLETED	PROJECT
1993	RACE STREET
1995	MEADOW LANE
1995	FOX AVENUE
1997	WHITE STREET
1998	HAMER STREET
1999	BERTHA AVENUE
1999	ARCH STREET
2000	MCPHERSON HIGHWAY
2000	WOODLAND AVENUE
2001	VINE STREET
2001	WOODLAND AVENUE
2002	EAST STREET
2002	GRANT STREET

The Following sewer separation projects have yet to be completed;

YEAR TO BE COMPLETED	PROJECT
2007	BUCKEYE STREET, PHASE 1
2008	WEST FOREST STREET
2008	BUCKEYE STREET, PHASE 2
2009	BUCKEYE STREET, PHASE 3
2010	EAST STREET, PHASE 1
2011	EAST STREET, PHASE 2
2012	EAST FOREST STREET

4.3 Financing Plan

SOURCE CONTROLS	ESTIMATED PROBABLE COST
Codified Ordinance 925	Completed
City Issued "Significant Industrial Users Permits"	\$2,000
Street Sweeping Program	Yearly O&M Costs
Catch Basin Cleaning	Yearly O&M Costs
Combined Sewer System Operational Plan	Completed
COLLECTION SYSTEM CONTROLS	ESTIMATED PROBABLE COST
Sewer Cleaning Program	Yearly O&M Costs
CSO Facilities Maintenance	Yearly O&M Costs
CSO Separation Projects Completed Race Street, Meadow Lane, Fox Avenue, White Street, Hamer Street, Bertha Avenue, Arch Street, Mcpherson Highway, Woodland Avenue, Vine Street, Woodland Avenue, East Street, and Grant Street	Completed
Buckeve Street. Phase 1	\$500,000
Buckeve Street. Phase 2	\$500,000
Buckeve Street. Phase 3	\$500,000
East Street. Phase 1	\$500,000
East Street. Phase 2	\$500,000
East Forest Street.	\$250,000
West Forest Street	\$200,000
STORAGE TECHNOLOGIES	ESTIMATED PROBABLE COST
In-Line Storage	Completed/Continuing
Control Improvements @ CSO	\$15,000
Equalization Basin Study (Required)	\$5,000
Equalization Basin Improvements (If Required, See page 105)	\$1,500,000
TREATMENT TECHNOLOGIES	ESTIMATED PROBABLE COST
Rain Gauge w/ data collector	\$2,000
CSO Screening Facility	\$350,000
TOTAL PROBABLE COST OF CONSTRUCTION OF PROPOSED IMPROVEMENTS	\$4,822,000

Figure 1: Financing Plan

PAGE REVISED SEPTEMBER 2007
PAGE REVISED SEPTEMBER 26, 2007

4.4 Implementation Schedule

SOURCE CONTROLS	COMPLETION YEAR
Codified Ordinance 925	Completed
City Issued "Significant Industrial Users Permits"	2006
Street Sweeping Program	Ongoing
Catch Basin Cleaning	Ongoing
Combined Sewer System Operational Plan	Completed
COLLECTION SYSTEM CONTROLS	COMPLETION YEAR
Sewer Cleaning Program	Ongoing
CSO Facilities Maintenance	Ongoing
CSO Separation Projects Completed Race Street, Meadow Lane, Fox Avenue, White Street, Hamer Street, Bertha Avenue, Arch Street, Mcpherson Highway, Woodland Avenue, Vine Street, Woodland Avenue, East Street, and Grant Street	Completed
Buckeye Street. Phase 1	2007
Buckeye Street. Phase 2	2008
Buckeye Street. Phase 3	2009
East Street. Phase 1	2010
East Street. Phase 2	2011
East Forest Street.	2012
West Forest Street	2012
STORAGE TECHNOLOGIES	COMPLETION YEAR
In-Line Storage	Ongoing
Control Improvements @ CSO	2007
Equalization Basin Study (Required)	2013
Equalization Basin Improvements (If Required, See page 105)	2015
TREATMENT TECHNOLOGIES	COMPLETION YEAR
Rain Gauge w/ data collector	2007
CSO Screening Facility	Completed

Figure 2: Implementation Schedule

PAGE REVISED SEPTEMBER 2007
PAGE REVISED SEPTEMBER 26, 2007

4.5 Operational Plan

The operational plan was developed in November, 2000 and included compliance with the nine minimum controls as established by the EPA. The purpose of the plan was to describe and analyze the control strategies the City uses for operation and maintenance of the combined sewer collection system with the goal of obtaining the maximum storage and treatment of the combined sewage flows and minimizing the discharge of pollutants from the system to Raccoon Creek. The Operational Plan will need updating to include the new controls as proposed in this LTCP. The updating of the Operational Plan may consist of a supplemental appendix that discusses the operational and maintenance of the new CSO Screening Facility.

4.6 Post Construction Compliance Monitoring

The City is required to develop the Post Construction Compliance Monitoring Program to ascertain the effectiveness of the CSO controls and to verify attainment of water quality standards. The City will be able to do so by the continued collection of data from the CSO Screening Facility discharge meter. This meter provides the City with information on the total volume of CSO that occurs at the City's only CSO. Figure 31 is a table that can be used with the CSO flow data as well as the WWTP discharge data to determine post construction compliance monitoring (for determination of 85% capture). The City may also monitor the number of events that occur each year to show the effectiveness of the improvements to allow the City to limit the overflows to four or less events per year.

The City intends to purchase a rain gauge with data collector that will allow the City to measure wet weather events (The City will either update their current rain gauge by adding a data logger or purchase a new unit). Currently, the City reads the rain gauge every 24 hours for the daily precipitation as required by the permit. The new rain gauge will allow the City to download and store rainfall data

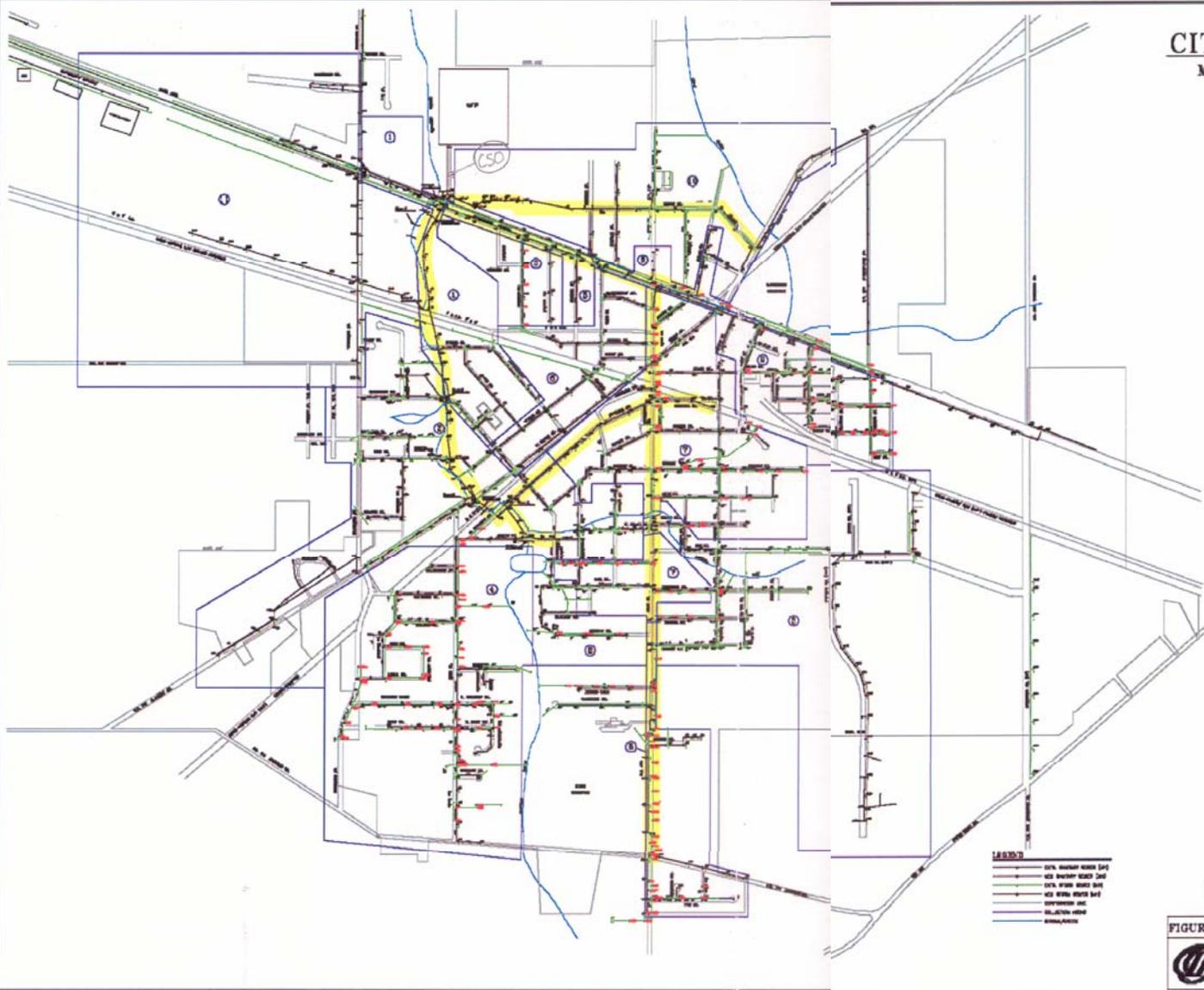
at reading intervals every 10 minutes. This data in conjunction with the plant influent meter readings and the CSO discharge meter readings will allow the City to model the system with respect to the CSO at any time. The rain gauge will be in place well before the first of the sewer separation projects to allow for the determination of the effectiveness of the improvements.

The rainfall data will allow the City to analyze the rainfall intensities and durations that cause CSO events to occur. This information will allow the City to determine the frequency of these CSO events (based on the rainfall frequencies). When or if the system continues to have more than 4 events per year the rainfall (it is anticipated that after the improvements are complete the system will still activate more than four times a year) the rainfall data will aid in the explanation of what is occurring. It is estimated that a six-month frequency storm will cause the CSO to activate after the sewer separation projects are completed.

The data that will be collected will be collected and used for analysis as part of the Equalization Basin Study. The City will be able to use the collected data to determine if sewer separation should continue (based on the effectiveness of the proposed projects) or if an equalization basin/ clarifier would be more appropriate. The City will evaluate CSO activity a year after (2013) the final proposed sewer separation project is constructed.

CITY OF CLYDE

MASTER SEWER ATLAS



- LEGEND**
- EXT. SANITARY SEWER (48")
 - EXT. SANITARY SEWER (36")
 - EXT. STORM SEWER (36")
 - EXT. STORM SEWER (24")
 - COLLECTION LINE
 - COLLECTION ARMS
 - STREAM/POCKET
 - INTERCEPTOR SEWER

- LEGEND**
- EXT. SANITARY SEWER (48")
 - EXT. SANITARY SEWER (36")
 - EXT. STORM SEWER (36")
 - EXT. STORM SEWER (24")
 - COLLECTION LINE
 - COLLECTION ARMS
 - STREAM/POCKET

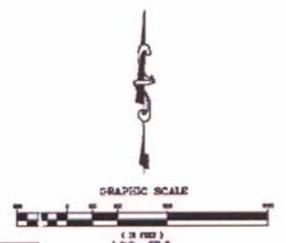


FIGURE 5



CONSULTING ENGINEERS