

Sewer Collection System Annual Performance Report

City of Eden, North Carolina

July 1, 2020 to June 30, 2021

I. General Information

Facility/System Name: City of Eden, Sewer Collection and Treatment System

Responsible Entity: City of Eden, Jon Mendenhall, City Manager

Person in Charge/Contact: Collection System and Pump Stations, Mike T. Vernon
Operator-in-Responsible Charge, 336-791-3145
Mebane Bridge Wastewater Treatment Plant, Chris Powell
Operator-in-Responsible Charge, 336-627-1009
New Street Wastewater Treatment Plant, Ron Wright
Operator-in-Responsible Charge, 336-627-1009

Applicable Permits: Sewer Collection System – WQCS00018
Mebane Bridge Wastewater Treatment Plant – NPDES Permit NC0025071
Land Application of Wastewater Residuals – NC Permit WQ0003035
New Street Wastewater Treatment Plant – NPDES Permit NC0001643

Description of Collection and Treatment Process:

The collection system consists of 161+ miles of gravity and 19.4 miles of force main sewer pipelines. The pipelines are composed of a mixture of clay, PVC, RCP, steel and ductile iron pipe, ranging in size from 6 to 36 inches. Age of the sewer pipelines range from new to more than 60 years old. Collection is accomplished by gravity from homes and businesses until it is necessary to pump from low elevations in force main sewer lines that transport the sewage to the treatment plant. There are 20 pump stations in the collection system. These range in size from pumping a few thousand gallons per day to more than five million gallons a day (MGD). The City has one primary collection drainage area. All of the city sewer drains, collects, or is pumped to the Mebane Bridge Wastewater Treatment Plant (MBWWTP), which can treat 13.5 MGD.

The MBWWTP has treated on average about 3.994 MGD this past year. This is a decrease from last year, but mostly because of wet weather the previous year. Currently, the Mebane Bridge plant is operating at a little less than one third of its capacity. The plant has mechanical barscreens to remove larger inert material, a grit removal system following the bar screens, and a fine screen after the grit removal system to further remove any material that is missed by prior treatment systems. Extended aeration using activated sludge is the next process to reduce and remove biochemical oxygen demand and ammonia. The sludge is separated from treated water by circular clarifiers. Collected sludge or biosolids are wasted to the aerobic digester or returned to the aeration system. The biosolids from the digester are then dewatered and land applied on permitted sites. We recently installed a new CleanB treatment system for the solids that eliminates the digester but does the same treatment in minutes instead of days. Treated water to the effluent leaves the clarifiers and is disinfected with chlorine and then dechlorinated. The treated effluent is then returned to the Dan River meeting all State Permit Discharge requirements.

The New Street WWTP was purchased in July 2020, and we officially began managing it in August 2020. It only receives a small flow from a local industry, so most months have no discharge. The months that do have discharge show an average of 0.0445 MGD but with 7 months of no discharge results in an annual average of 0.0162 MGD.

II. Maintenance

Collection System

The City of Eden is presently under an administrative order on consent reissued by the Environmental Protection Agency to eliminate sanitary sewer overflows that continue to occur from its sewer collection system. We have until February 28, 2022 to complete all improvements. We have made a request to extend this date, but we have not received a changed date.

The City has Collection & Distribution (C&D) field personnel to respond to emergencies in order to maintain the sewer collection system. Their job is to repair broken lines, installation of new sewer line, mow and maintain sewer outfall lines, and respond to, rectify and mitigate sewer bypasses. Personnel are on call nights and weekends year round to respond to emergency problems in the collection system. The City's 20 pump stations are monitored by 2 C&D Operators 24 hours per day, 7 days per week, by remote telemetry (Mission Communications) and physically checked on normal workdays by C&D personnel for proper operation. Maintenance crews along with C&D personnel perform scheduled preventative maintenance on each of these pump stations to protect the equipment and insure long life. An extensive warehouse of supplies and parts are maintained to address emergency breakdowns and failures in the pump stations and the sewer lines.

The following was accomplished during fiscal year 2020-2021:

A total of 31 Inflow & Infiltration (I&I) problems were responded to and repaired.

A total of 103 laterals and 29 sewer mains were responded to and unstopped.

A total of 17.01 miles (89,817 linear ft.) of sewer mains throughout the City of Eden were cleaned by sewer jet or rodder

A total of 12.27 miles (65,805.1 linear ft.) of sewer mains throughout the City of Eden were inspected by CCTV throughout the City of Eden.

Treatment Plants

Treatment Plant Operators are on duty 24 hours per day, 7 days per week, to ensure proper treatment of all incoming wastewater. They monitor plant equipment and do inspections during each shift to insure process control and the mechanical operation of the equipment. Maintenance personnel are available each day to service equipment and are on call nights and weekends for emergency repairs in case the treatment equipment suffers failure. A large parts inventory is maintained of the items that have historically been prone to failure.

III. Performance

Collection System Operations

During the past 12 months, there have been 13 events in which 24 incidents occurred where raw sewage overflowed or bypassed from the gravity collection system to surface waters. The overflows from these gravity flow pipelines in the collection system, most of which were immediately upstream of pump stations, totaled 149,385 gallons, with 149,005 gallons reaching surface waters. Of the 24 incidents, 17 were caused by I&I directly from storm water runoff and the resulting flood waters flowing into the gravity sewer mains.

There were 5 overflows that did not involve pump stations. Of these, one was caused directly or indirectly by I&I and 2 overflows were caused by pipe failure in a sanitary sewer gravity main when a log jam carried by flood water took down 150 feet of an aerial line on the Smith River Railroad Trestle. 4 subsequent overflows at this location were caused by equipment failure during a bypass pumping operation. 1 was from an old bypass line to the river that had been plugged many years ago and then failed. The last 2 were overflows caused by blockages from a buildup of disposable wipes. Gravity sewer line losses account for 8,366 gallons of the sewage lost in the last 12 months.

Of our 20 sewer pump stations; 6 pump stations had sanitary sewer overflows during the last 12 months in 8 events. These were as follows: 7 overflows occurred at Covenant Branch Pump Station

releasing a total of 52,597 gallons, 3 overflows occurred at Railroad Pump Station releasing a total of 37,504 gallons, 1 overflow occurred at Meadowgreens Pump Station releasing a total of 10,800 gallons, one overflow Junction Pump Station releasing 7,920 gallons, 2 overflows occurred at New Street Pump Station releasing a total of 2,088 gallons and one overflow occurred at Dan River Pump Station releasing 19,530 gallons of raw sewage. All except 300 gallons entered surface waters. Pump stations account for 141,019 gallons of the sewage lost. The cause for these overflows was I&I of storm water and flood water.

When overflows or bypasses occurred, the affected sites were evaluated, cordoned off from or otherwise isolated from the public and/or receiving streams and monitored for environmental impacts as conditions dictated.

*Numerous sources of I&I continue to be identified and repaired.

Treatment Plants Operations

Compliance with North Carolina NPDES (National Pollution Discharge Elimination System) Permit is based on meeting discharge parameters set forth in the NPDES Permit. This information is reported monthly to the North Carolina Department of Environment and Natural Resources through self-monitoring reports. The following is a summary of our plant permit compliance for the last 12 months:

<u>Reporting Month</u>	<u>Mebane Bridge Plant</u>	<u>New Street</u>
July 2020	Compliant	-----
August 2020	Compliant	Compliant
September 2020	Compliant	Compliant
October 2020	Compliant	Compliant
November 2020	Compliant	Compliant
December 2020	Compliant	Compliant
January 2021	Compliant	Compliant
February 2021	Compliant	Compliant
March 2021	Compliant	Compliant
April 2021	Compliant	Compliant
May 2021	Compliant	Compliant
June 2021	Compliant	Compliant

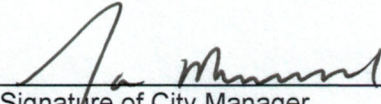
IV. Notification

This report will be submitted to the State Division of Water Quality and be released to the local news media and posted on the City's internet web site at www.edennc.us.

V. Certification

"I certify, under penalty of law, that this document and all attachments were prepared under my direction of 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 knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violation."

Jon Mendenhall



 Signature of City Manager

7/19/21

 Date