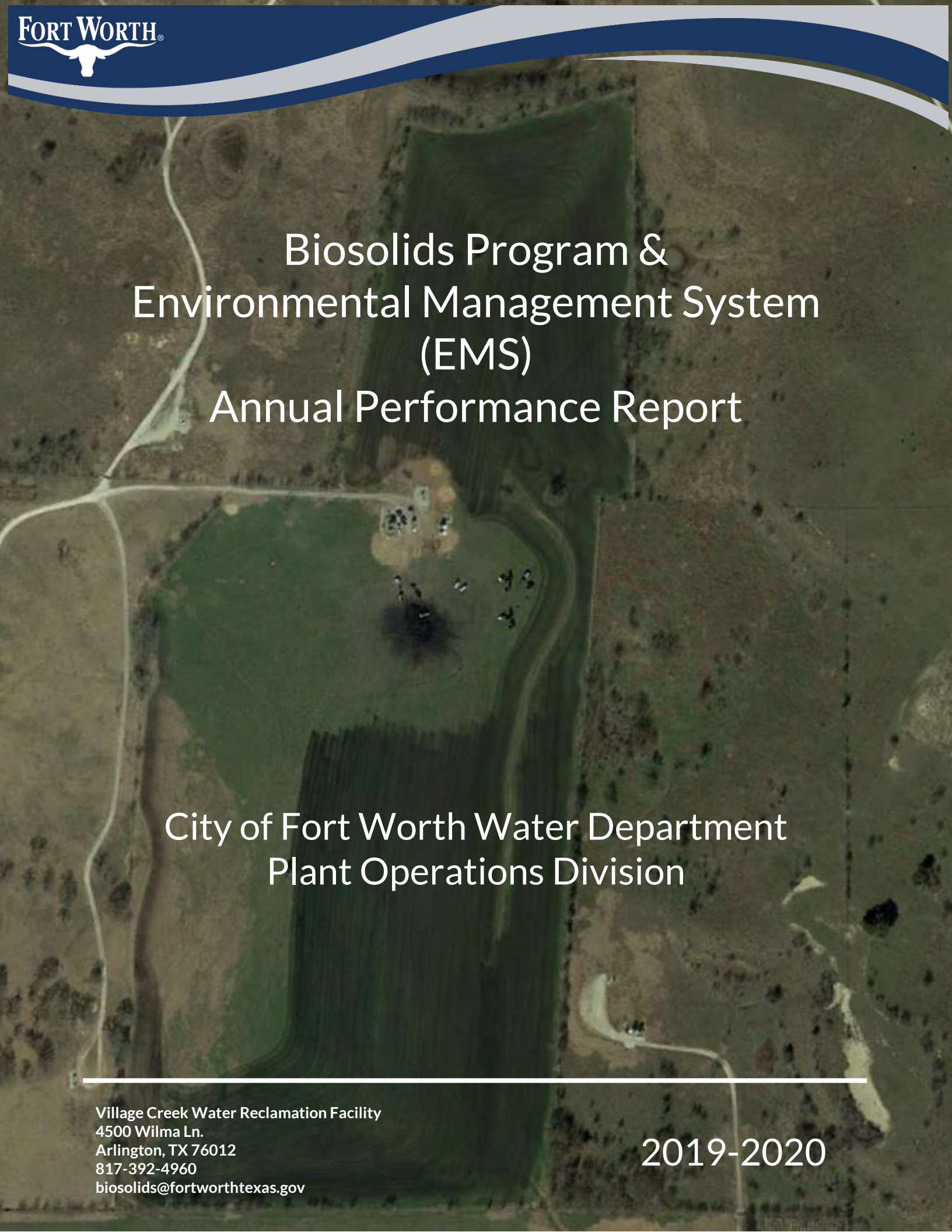

Biosolids Program & Environmental Management System (EMS) Annual Performance Report

City of Fort Worth Water Department
Plant Operations Division

Village Creek Water Reclamation Facility
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2019-2020

Table of Contents

INTRODUCTION 3
Annual Performance Report (APR) 3
ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) 3
National Biosolids Partnership (NBP) 3
PROGRAM SUMMARY 4
Beneficial Reuse and Disposal 4
Goals and Objectives 4
Audits 5
Public Outreach 5
Pretreatment Services 5
ACCOMPLISHMENTS FOR 2018-2019 REPORTING YEAR 6
BIOSOLIDS MANAGEMENT PROGRAM 7
Biosolids Production 7
Beneficial Reuse Options and Management Practices 8
Contractor Performance 8
Monitoring and Measurement 9
EMS Activities and Timeline 10
Goals and Objectives 11
Corrective Action Notices (CANs) 11
LEGAL REQUIREMENTS 11
SPILLS, EMERGENCY ACTIONS, AND RESPONSE 11
PUBLIC OUTREACH AND PARTICIPATION PROGRAM 11
FUTURE PLANS/ADVANCES IN BIOSOLIDS TECHNOLOGY 12
CONTACT INFORMATION 12
APPENDIX A: CORRECTIVE ACTION NOTICES 2018-2019 13
APPENDIX B: CURRENT GOALS AND OBJECTIVES 15

INTRODUCTION

The City of Fort Worth's biosolids program is a public/private partnership in which the biosolids contractor is responsible for processing, dewatering, transporting, and performing beneficial land application of biosolids produced from the Village Creek Water Reclamation Facility (VCWRF). Renda Environmental Inc. (REI) performed these services until the contract expired on March 31, 2020. Synagro Of Texas-CDR, Inc. is the current biosolids contractor and has provided service to the City of Fort Worth since April 01, 2020.

Annual Performance Report (APR)

This APR summarizes Fort Worth's Biosolids Program performance, biosolids production and reuse, goals and objectives, EMS activities, public outreach, and the commitment towards continual improvement. This report and other biosolids information on operations and activities are detailed on the City's website.

ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

The biosolids EMS is a systematic approach that helps the City to continually improve activities that are associated with environmental performance. The National Biosolids Partnership (NBP) sets standards and guidelines that the City's EMS must achieve in order to receive and maintain NBP certification. A properly implemented EMS assists the City's Biosolids Program with the following:

- Identifying the overall goals and objectives of the Biosolids Program
- Creating a series of management practices to meet the goals and objectives
- Managing biosolids activities and monitoring and measuring the effectiveness of the program
- Taking corrective and preventative measures if the management practices are not operating correctly
- Conducting audits of the Biosolids EMS Program
- Requiring management involvement to make changes to the program as needed

National Biosolids Partnership (NBP)

The National Biosolids Partnership is a voluntary partnership between the National Association of Clean Water Agencies (NACWA) and Water Environment Federation (WEF). NBP is committed to developing and advancing environmentally sound and sustainable biosolids best management practices through comprehensive management systems. The mission of the NBP is to advance the understanding and adoption of effective practices in biosolids management and offer:

- Education and training;
- Technical assistance;
- An information clearinghouse; and
- An EMS-based third-party certification program for biosolids management systems.

Due to the maturity of the Fort Worth Biosolids Program, the City continues to certify at the Platinum Level with the NBP.

Figure 5. The City of Fort Worth's EMS has been certified by the NBP since July 2005.

PROGRAM SUMMARY

The following information summarizes the breadth of the Biosolids Program and its EMS. During 2019-2020 reporting year, the Biosolids Program utilized approximately 19.4% of the total Plant Operations Division budget. Isolating the wastewater budget from the total budget for the Plant Operations Division, biosolids utilized 38%.

Beneficial Reuse and Disposal

During the past reporting year (August 1, 2019-July 31, 2020), the City of Fort Worth's Biosolids Program beneficially reused and recycled 99.97% (excluding lime) of its Class AB biosolids and landfilled 0.03%.

Goals and Objectives

Every quarter, goals and objectives for the biosolids program are updated. During the reporting year, the biosolids program has been making progress towards 7 goals. These goals include the following:

- **Increase digested feed sludge to 5% as a daily average**
  The purpose of this goal was to look into new thickening technology (rotary drum thickeners) that could replace the Dissolved Air Flotation Thickeners (DAFTs). In April 2017, the scope of the thickening project associated with this goal changed to include improvements to the Gravity Belt Thickeners (GBTs) and replacing the Gravity Thickeners. City Council awarded contract for construction activities on June 23, 2020. Construction started on August 3, 2020 and is projected to be completed by Winter 2022.
- **Grit Improvement Project- Reduce the number of work hours associated with unplanned corrective grit-related repairs by 25%. This will be based on an annual average reduction in total labor hours dedicated to such repairs.**
  The purpose of this project is to improve the influent grit removal process at Village Creek. The improvements are designed to remove 95% of 105-micron particles or larger. This will reduce grit repair related activities throughout Village Creek and improve clarifier performance. The project also includes a low-lift influent lift station to route flow from the south around to the headworks building. Baseline data for work orders was started in January 2020 and will be compiled until construction is completed on the new grit facility. Once the grit facility is operational, one year of data will then be collected to compare its performance versus the baseline conditions. Labor hours will be tracked using the City's computerized maintenance management system (Maximo). City council awarded contract for the new facility on June 23, 2020. Construction is scheduled to start by late Fall of 2020 and is projected to be completed by March 2023.
- **Increase percent solids of biosolids (prior to lime addition) by 7% for a final solids concentration of 22% as a daily average**
  This goal was created in December 2014 during a year the biosolids program was experiencing dewatering and odor issues and after the ferric chloride system was brought online to mitigate these issues. The average percent solids for biosolids (prior to lime addition) for 2014 was 15%. The effectiveness of the ferric chloride treatment increased this to 16-17% solids. Refurbishment work on three filter belt presses was completed by May 22, 2020 and the one remaining press is scheduled for completion during the 2021 fiscal year to help improve dewatering activities. In addition, the new biosolids contractor (Synagro) has a pilot project underway to evaluate the effectiveness of centrifuges and new polymers. As such it is hoped the biosolids will achieve an average of 22% prior to lime addition.
- **Increase biosolids storage capacity from 1.3MG to 6.3 MG**
  This goal was developed in June 2015 for the purpose of increasing sludge storage capacity to allow for more flexibility during inclement weather and operational and maintenance situations, which will help improve biosolids management practices and odor performance. Construction of a 5 million gallon concrete storage tank with air jets began in December 2018 and is scheduled to be completed by the end of October 2020.
- **Address public concerns regarding biosolids**
  The biosolids program has set a goal of increasing public feedback by 20%. However, this goal is proving difficult to achieve due to restrictions associated with the COVID-19. This is primarily due to the fact that public tours of the Village Creek Water Reclamation Facility are on hold due to safety concerns associated with the pandemic. The City is evaluating other methods, including electronic media, to improve its outreach activities.
- **Design, build, operate & maintain a new biosolids processing facility**
  The Biosolids Master Plan was finished in January 2019. This document called for the construction of a new biosolids processing facility to produce Class A biosolids via thermal drying. Design of the new facility began in January 2020 and

has reached the 90% design phase as of September 2020. Construction work commenced on July 14, 2020 and design work has achieved 90% as of September 2020. The new facility is scheduled to be operational by the summer of 2022.

Audits

An internal audit was conducted on August 28th-29th, 2019. A third-party EMS external audit was held on October 16th through 18th, 2019. The results of the audit indicated that there were no major nonconformities, 3 minor nonconformances, 7 opportunities for improvement and 5 positive commendations. Copies of these reports can be found on the City's biosolids EMS webpage.

Public Outreach

The 2019-2020 reporting year saw a continuation of public outreach efforts for the Fort Worth Biosolids Program. Infotubes with the City's Frequently Asked Question (FAQs) sheets were made available at the land application site entrances from August 1st 2019 to March 31st, 2020. However a new biosolids contractor took over operations starting on April 1st, 2020. The City's FAQ sheets were not distributed via Infotubes from April to July 2020 due to delays associated with the transition to a new contractor (FAQ sheet needs to be updated). Overall for the 2019-2020 reporting period 37% of the City's FAQ sheets that were made available at the land application sites were taken by the general public. It is important to note that the Biosolids Contractor is providing their own FAQ sheets to the general public.

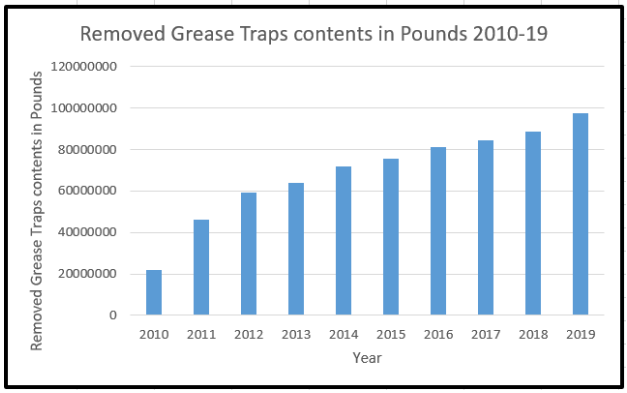
From August 2019 to July 2020, 874 individuals experienced a tour at VCWRF or a Biosolids specific presentation. The tours include information regarding the biosolids program. Tour numbers were slightly higher than the previous year, but were lower than average due to COVID19. VCWRF has suspended tours in response to the pandemic and it is likely that tour numbers will substantially decrease for the next reporting year.

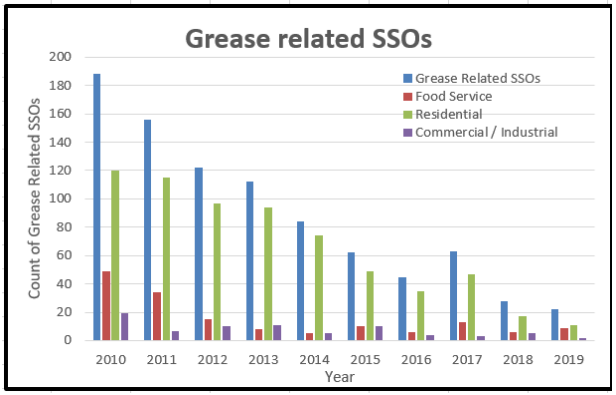
Pretreatment Services

Every November, Pretreatment Services recognizes those industrial facilities that have achieved compliance excellence and performance by complying with regulatory and permit requirements. In November 2019, 88 of 137 industries were 100% compliant. Of these industries, 6 facilities received a Stewardship award (11 or more years of 100% compliance), 50 received a Partnership award (3-10 years of 100% compliance), 14 received an Associate award (2 years of 100 % compliance) and 18 received a Star award (1 year of 100% compliance). Five industries received Pollution Prevention awards for their efforts in using materials, processes, or practices that reduce or eliminate wastes and one facility received Industry of the year award for a Fort Worth industry that has demonstrated 5 or more years of consistent compliance and significant pollution prevention activities.

Pretreatment Services continues to have success with their Fats, Oil, and Grease (FOG) Abatement Program that regulates Food Services Establishments (FSEs). The following graphs illustrate the decline in sanitary sewer overflows the City has experienced as a result of the FOG Abatement Program and the quantity of grease removed from grease traps.

Pretreatment services also has a comprehensive monitoring program that samples the collection system, as well as the influent and effluent of the Village Creek Water Reclamation Facility on a monthly basis. Any abnormal data from the monthly monitoring at VCWRF can be investigated using data from the system-wide sampling. A follow-up plan that segregates the locations of interest is used to conduct investigations, inspections and monitoring of facilities in the surrounding areas. Heavy metals have consistently been under the Maximum Allowable Headworks Loadings (MAHL).





All of Pretreatment Service's efforts protect the Village Creek Water Reclamation Facility and ensure that effluent discharges comply with state and federal requirements. In turn, this protects the quality of the biosolids as, it too, is tested monthly for heavy metals and other pollutants of concern.

ACCOMPLISHMENTS FOR 2019-2020 REPORTING YEAR

- Since the last reporting year, the Biosolids Program has made progress toward achieving its EMS goals and objectives. A copy of the current goals and objectives is included in Appendix B.

- On December 30, 2019 a contract was awarded to Synagro of Texas-CDR to design and construct a thermal dryer facility to produce Class A biosolids. Synagro must construct the new dryer facility within 30 months of the effective date of the contract. Synagro will then operate and maintain the dryer facility for the initial 10 year term of the contract, with another 10 year renewal option.

- Once the new dryer facility is operational it should result in a significant cost reduction for the biosolids program. It is estimated that it will save the City of Fort Worth approximately 3 million dollars per year when compared to the 2018 – 2019 budget year.

- On April 1st, 2020 Synagro assumed responsibility for operating and maintaining the existing biosolids dewatering infrastructure (belt presses, lime stabilization) as well as transporting and land application of all biosolids.

- As part of its contractual obligations Synagro is responsible for signing up landowners to participate in the Fort Worth Biosolids Program. Since the beginning of the year over 20,000 acres have been added to the program in five counties around North Texas

BIOSOLIDS MANAGEMENT PROGRAM

Annual Biosolids Reporting Period	August 1st, 2019 to July 31st, 2020
Registration/Permit Number:	TPDES #10494-013
Transporter No.:	TCEQ--#20009 (Synagro of Texas-CDR, Inc.) TXDOT--#271617 (Synagro of Texas-CDR, Inc.) TCEQ--# 20009 (GIC for Synagro of Texas-CDR, Inc.) TXDOT-- # 3425884 (GIC)
Type of biosolids produced:	Class AB (TCEQ)
Amount of biosolids beneficially reused/recycled:	26,397.17 dry tons (without lime)
Amount of biosolids beneficially reused/recycled:	23,947.11 dry metric tonnes (without lime)
Percentage of biosolids beneficially reused/recycled:	99.97%

Biosolids Production

The City of Fort Worth produces biosolids at the City's dewatering facility located north VCWRF. During 2019-2020, 26,397.17 dry tons (without lime) of biosolids were produced. Due to inclement weather and odor concerns, 7.63 dry tons were landfilled.

The biosolids are anaerobically digested and dewatered by belt filter press to produce a cake product that is 16% to 18% solid (without lime). Lime is added to the biosolids after dewatering to ensure compliance with the pathogen requirements in the Texas Pollutant Discharge Elimination System (TPDES) permit. The biosolids are then land applied by the Biosolids Contractor.

Table 1. Number of Biosolids Program landowners per county plus site acreage

Landowner Participation by County - Renda Environmental, Inc.				
Counties	**Landowners**	**Noticed Sites**	**Noticed Acres**	**Percent of Total Acreage**
Bosque	1	1	1400	2.0%
Denton	2	2	250	0.4%
Ellis	3	8	2,692	4%
Hill	9	22	6,909	11%
Hood	4	7	7,783	13%
Johnson	18	38	16.064	26%
Parker	4	4	12,389	20%
Tarrant	5	5	2,192	4%
Wise	18	24	11,507	19%
TOTAL	**64**	**111**	**61,186**	**100%**

Landowner Participation by County – Synagro Of Texas-CDR, Inc.				
Counties	**Landowners**	**Noticed Sites**	**Noticed Acres**	**Percent of Total Acreage**
Bosque	1	1	400	2.0%
Denton	2	2	975	5%
Hill	10	28	10, 152	56%
Hood	2	3	2,265	13%
Johnson	3	3	1,451	8%
Kaufman	2	2	2,650	15%
Wise	1	1	200	1.0%
TOTAL	**21**	**40**	**18,093**	**100%**

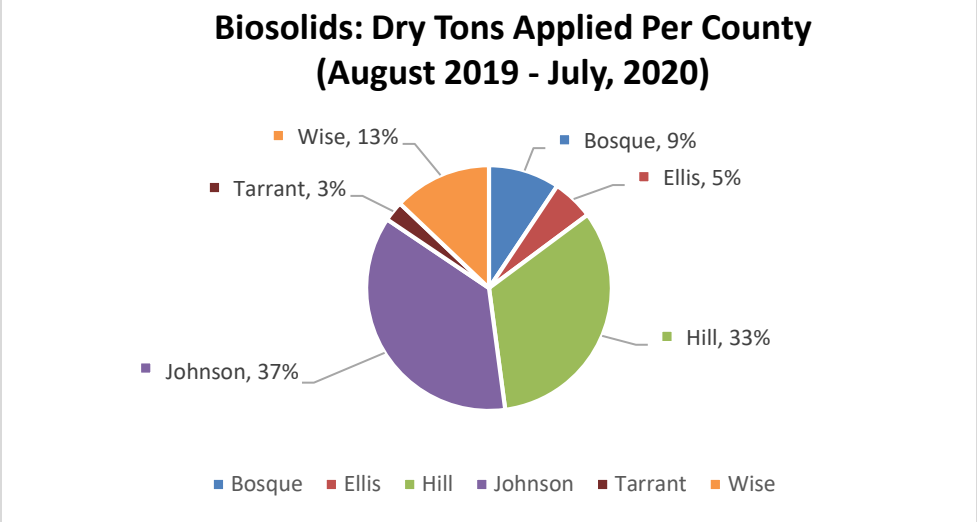


Figure 3. Percent of dry tons applied in each county during August 2019-July 2020.

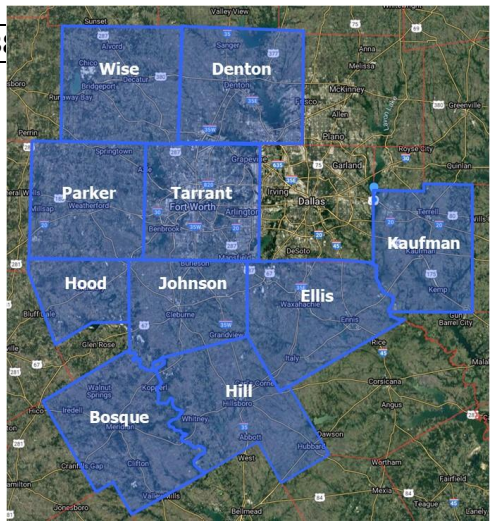


Figure 4. Counties in the City's Biosolids Program that can receive land application.

Beneficial Reuse Options and Management Practices

Biosolids produced at VCWRF were properly processed, monitored, and agronomically land applied to thousands of acres of farm and pasture land in neighboring counties. The biosolids serve as an excellent soil amendment and add to the nutrient value to crops and grasses. For the 2019-2020 reporting year, Bosque, Ellis, Hill, Johnson, Tarrant and Wise counties received land application of biosolids.

Contractor Performance

Biosolids operations in Fort Worth were completed by Renda Environmental Inc. (August 2019-March 31, 2020) and by Synagro Of Texas-CDR, Inc. (April 01, 2020-July 31, 2020). The Biosolids Contractor operates and maintains the belt filter presses and all auxiliary equipment and continually monitors and tracks the amount of biosolids applied to each land application site. The responsibilities of the Biosolids Contractor includes the following:

- Operation of the dewatering facility and further processing of the biosolids by belt-filter press dewatering;
- Transportation of biosolids material;
- Land application to beneficially reuse the biosolids produced at VCWRF;
- Posting signage at land application sites that include contact information;
- Daily odor monitoring at land application sites & the biosolids processing facility, and;
- Performing necessary biosolids sampling for permit compliance.

City Oversight/Inspections

City personnel perform daily visits and inspections to the dewatering facility and land application sites to ensure that the contractor is following best management practices concerning biosolids dewatering, transportation and land application.

When land application occurs, City personnel perform daily inspections to evaluate and record weather and site conditions, observe transport vehicle unloading/cleaning procedures, and verify contractor compliance with regulations, buffer zones, and posting requirements. An olfactometer is used to help quantify odors and establish an odor monitoring history at each land application site.

Once land application is complete, a final close-out visit is conducted by City personnel. This final site visit is performed to ensure that all biosolids material has been properly applied and all equipment has been removed. From August 1, 2019 to July 31, 2020, city personnel performed 239 land application site visits.

Monitoring and Measurement

Under City contract, the Biosolids Contractor uses an independent certified laboratory to analyze the biosolids produced at VCWRF. Samples of biosolids are taken from the process areas and analyzed for fecal coliform, pathogens, metals, Polychlorinated Biphenyls (PCBs), Toxicity Characteristic Leaching Procedure (TCLP), pH, and percent solids. Sampling frequency is established by the TPDES permit for VCWRF. By contract, the Biosolids Contractor must comply with the regulatory requirements detailed in the TPDES permit and summarized in Table 2.

Biosolids samples are analyzed monthly for metals and PCBs. For 2019-2020, all metal concentrations were significantly below Table 1 ceiling concentration limits and Table 3 pollutant concentrations as required by 40 CFR 503 and 30 TAC 312, for the use or disposal of sewage sludge. The metals and PCB concentrations are shown in Table 3. In addition, the City and the Biosolids Contractor collect samples for Toxicity Characteristic Leaching Procedure (TCLP) analysis. Two TCLP samples were collected during the 2019-2020 reporting year. All samples were compliant with TCLP standards.

Table 2. Monitoring Requirements associated with the City's Biosolids Program

TPDES CLASS AB BIOSOLIDS MONITORING METHODS AND FREQUENCY	
Pathogen Control	30 TAC 312.82 (a) Alternative 4
	• Fecal Coliform Density <1000 MPN* • Enteric Virus Density <1 Plaque-forming unit per 4 gram total solids** • Viable Helminth Ova Density <1 per 4 grams total solids**
Vector Attraction Reduction	30 TAC 312.83 (b) (1-8) Alternative 1 or 6
	• Alternative 6: pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two hours and then remain at a pH of 11.5 or higher for an additional 22 hours
MONITORED ITEM	**FREQUENCY**
Fecal Coliform	One to Two (1-2) times per month
Pathogens	One to Two (1-2) times per month
Metals	Monthly
PCBs	Monthly (August 2019- March 2020) Or Annual
TCLP	Two (2) times per year Or Annual
pH	Operation Process-Daily; Regulatory Compliance- Weekly (if using Alternative 6 for Vector Attraction Reduction)
% Total Solids	Daily
* Most Probable Number	
** Dry Weight Basis	

During the 2019-2020 reporting period the Fort Worth Biosolids Program was compliant with the following TPDES monitoring requirements:

- Helminth Ova
- Metals
- Toxicity Characteristic Leaching Procedure (TCLP)
- Polychlorinated Biphenyl (PCB)
- Odor Log Monitoring Requirements
- Fecal Coliform
- Enteric Virus. Please note the analytical Result for May 2020: 8 PFU/4 grams. However this result is believed to have been caused by problems at the third party laboratory that performed the analysis. This lab is no longer being utilized for compliance sampling.

Table 3. VCWRF's permit required metal sampling results from August 2019 to July 2020.

METAL AND PCB CONCENTRATION (REPORTED IN MG/KG DRY WEIGHT BASIS)											
Year 2019-2020	As mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Pb mg/kg	Hg mg/kg	Mo mg/kg	Ni mg/kg	Se mg/kg	Zn mg/kg	PCB mg/kg
NPDES Permit Limits (Table 1)	*75*	*85*	*3000*	*4300*	*840*	*57*	*75*	*420*	*100*	*7500*	*n/a*
NPDES Permit Limits (Table 3)	*41*	*39*	*1200*	*1500*	*300*	*17*	*****	*420*	*36*	*2800*	*n/a*
August	7.1	ND	38.7	439	19.4	0.75	24.7	36.2	4.9	594	0.00
September	10.5	ND	30.3	443	15.7	0.27	ND	35.1	7.3	531	0.00
October	12.8	ND	49.5	426	17.4	0.39	29.1	36.6	9.1	517	0.00
November	15.6	ND	62.6	343	15.9	0.23	ND	40.7	ND	447	0.00
December	13.7	ND	55.5	445	21.1	0.50	ND	32.4	ND	529	0.00
January	7.0	ND	36.3	367	14.7	0.32	ND	24.4	ND	425	0.00
February	5.7	ND	48.1	392	17.0	0.24	ND	31.70	5.70	632	0.00
March	6.5	ND	46.1	351	15.0	0.25	ND	26.30	7.30	541	0.00
April	7.5	ND	49.4	355	19.0	0.32	17.70	29.60	4.67	571	N/A
May	6.11	0.64	50.00	413.0	17.90	0.22	23.20	25.80	5.10	596	N/A
June	8.38	0.738	45.9	452	17.7	0.18	26.8	36.4	4.40	539	N/A
July	11.1	ND	39.4	399	16.2	0.23	27.0	27.5	6.51	534	N/A
Yearly Avg. Metals Conc.	**9.33**	**0.69**	**45.98**	**402.08**	**17.25**	**0.32**	**24.75**	**31.89**	**6.11**	**538**	**ND**
Highest Monthly Conc.	**15.60**	**0.74**	**62.60**	**452.00**	**21.10**	**0.75**	**29.10**	**40.70**	**9.10**	**632**	**ND**
***No limit established by federal regulations											
Pathogen Requirement Achieved: Class AB				Pathogen Reduction Alternative Used: Alternative 4				Vector Attraction Reduction Alternative Used: Alternative 6			

EMS Activities and Timeline

The EMS manual was updated periodically throughout the reporting year. The following table indicates additional biosolids EMS activities conducted during the past year.

Table 4. EMS activities and associated dates.

2019-2020 EMS Activities	Date
Goals and Objectives Updates	Quarterly (September, December, March, June)
Corrective Action Notices And Corrective Action Plan Review	Quarterly (September, December, March, June)
EMS Internal Audit	August 28 – 29, 2019
EMS Performance Report	September 30, 2019
EMS Management Review	October 11 , 2019
EMS External Third-Party Audit	October 16 -18, 2019

Goals and Objectives

The City has established goals and objectives to help improve selected biosolids management activities. These goals are updated every quarter in order to track their progress and to establish new goals and objectives when appropriate. The list of goals and objectives, which were last updated on September 30, 2020, are included in Appendix B of this report. A summary of these goals is on pages 3 and 4 of this document.

Corrective Action Notices (CANs)

As defined in EMS Element 14, Corrective Actions are "specific actions and steps taken to correct an organization's nonconformance(s) to environmental policies, procedures, and other requirements, and to mitigate any residual impacts to the environment." It is the policy of the Fort Worth Biosolids EMS Program to create a CAN for any identified nonconformance as well as any identified opportunities for improvement, which are those changes that are recommended but not required. The City has been diligent in developing CANs for noncompliance issues as they relate directly to the biosolids program. All CANs for the 2019-2020 year have been summarized in Appendix A.

LEGAL REQUIREMENTS

VCWRF regularly reviews federal, state, and local rules and regulations that may have an impact on biosolids management activities. There were no major regulatory changes during the reporting period.

SPILLS, EMERGENCY ACTIONS, AND RESPONSE

There were no spills during the 2019-2020 reporting year.

PUBLIC OUTREACH AND PARTICIPATION PROGRAM

Tour surveys during VCWRF tours continue to be collected. During 2019-2020, 17 university classes, 6 high school classes, 6 professional groups, and 1 citizen experienced a tour of VCWRF. Tour surveys gauge how much the general public knows about biosolids before and after the tour, and opinions on land application of biosolids. Data is collected and analyzed regarding opinions about biosolids and how they may relate to age, gender, and education level.

For the 2019-2020 year, the Biosolids Program created a new objective to try to increase biosolids feedback by 20%, by reaching stakeholders directly affected by biosolids application and to garner more specific biosolids feedback during tours, as opposed to general tour comments. Action plans to help achieve this objective were as follows: create an on-line survey to target residences around land application sites, conduct biosolids only presentations, and create an additional survey for the end of the biosolids only presentation. An on-line survey and corresponding QR code was created early in the biosolids year, with the intention of advertising the survey on the existing land application signs posted at the entrance of each land application site. However, the pending new contract and transition to a new contractor significantly delayed implementation of the QR code and survey. In July 2020, Synagro began placing the QR code linking back to the survey on the land application signs. To this point, only one response has been received. After a few months, the City of Fort Worth will evaluate if the delivery of the QR code and survey are adequate or if Synagro needs to adjust the delivery method.

In November of 2019, the Biosolids Program gave three Biosolids specific presentations to Texas Christian University. At the end of this Biosolids specific presentation, a new survey was given to the students to asking about their opinions on Biosolids. Approximately 109 students took the survey, and 22 comments were received about biosolids, a definite % increase from the general tour survey. However, the sample size is small and more surveys need to be taken to ascertain whether or not this trend will continue. Generally speaking, the feedback was positive regarding the use of land application as a means to recycle the material. The Biosolids Program will continue to evaluate these surveys, to see if the 20% increase in feedback has been met and if a goal can be created from the feedback. However, due to the pandemic, these Biosolids specific presentations are not likely to be given for a significant portion of the 2020-2021 year.

This year, an additional action plan was created to develop & implement public outreach activities to address public concerns on pharmaceuticals. The Biosolids Program identified several City of Fort Worth public outreach events such as an Earth Day Celebration and Yardsmart, with plans to distribute information pertaining to the benefits of Expired Prescription Take-Back Programs. However, these events were canceled due to the pandemic. If the pandemic persists and public events continue to be suspended, the Biosolids Program will reevaluate this action plan to see if adjustments can be made.

FUTURE PLANS/ADVANCES IN BIOSOLIDS TECHNOLOGY

Belt-Filter Press Refurbishment: In September 2018, City Council approved funding for the refurbishment of four existing belt presses. Refurbishment work began in the spring of 2019 and work was completed on three presses by June 2020. The remaining press will be rebuilt during the next fiscal year.

Liquid Sludge Storage Tank: City Council approved the storage tank project in September 2018. This project consists of a 5 million gallon liquid sludge storage tank with air jets that will allow the City to halt biosolids production during extended wet weather events. The increased storage volume and aeration will help improve the odor performance of biosolids during land application. Construction started in December 2018 and is scheduled to be completed by the end of October 2020.

New Biosolids Processing Facility: The recently issued Biosolids Master Plan calls for the construction of a new biosolids processing facility that will utilize thermal drying to achieve Class A biosolids. The City is moving aggressively to implement this recommendation from the Master Plan. On December 30, 2019 a contract was awarded to Synagro to design and construct a thermal dryer facility to produce Class A biosolids. Synagro must construct the new dryer facility within 30 months of the effective date of the contract. Synagro will then operate and maintain the dryer facility for the initial 10 year term of the contract, with another 10 year renewal option. Design work on the new facility began in January 2020 and construction was underway as of July 2020.

CONTACT INFORMATION

If you have comments on this report or any other biosolids related items please call or email.

Village Creek Water Reclamation Facility	817-392-4960
Biosolids EMS Manager	817-392-4965
Biosolids Program Email	biosolids@fortworthtexas.gov

To find out more information about the City of Fort Worth Biosolids Beneficial Reuse/Recycling program and the EMS visit our website: http://fortworthtexas.gov/water/biosolids/

To find out more information on biosolids in general, biosolids facts, regulation requirements, and about the national Biosolids Partnership EMS program, visit the website: http://www.biosolids.org

APPENDIX A: CORRECTIVE ACTION NOTICES 2019-2020

CORRECTIVE ACTION NOTICES AUGUST 1, 2019-JULY 31, 2020					
CAN #	**Date**	**Non-Conformance Issue**	**Scheduled Completion Date**	**Actual Completion Date**	**Close-Out Date**
2019-01	10/08/19	Requirement 9.3: Develop and implement standard operating procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts. (Land Application Setbacks)	10/08/19	10/08/19	10/14/19
2019-02	10/14/19	Requirement 14.3: Implement a procedure to document the necessary corrective actions taken to prevent future reoccurrences. (City Odor Monitoring)	10/14/19	10/14/19	10/14/19
2019-03	11/14/19	Requirement 5.1: the standard requires that program goals and objectives be developed using SMART criteria (Specific, Measurable, Achievable, Relevant, Time-bound). (External Audit Finding – Grit Project)	12/06/19	12/30/19	12/30/19
2019-04	11/14/19	Requirement 11.2: The standard requires the review and evaluation of the effectiveness of emergency preparedness & response procedures for the biosolids value chain including communication systems. (External Audit Finding; Internal Audit Finding with Revisions/updates)	05/30/21	TBD	TBD
2019-05	11/15/19	Requirement 17.2(C): The standard requires documentation of the management review findings, evaluations and follow-up activities (meeting minutes). (External Audit Finding)	11/15/19	11/15/19	12/23/19
2019-06	12/20/19	Requirement 9.3: Develop and implement standard operating procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts. (Land Application Setbacks)	01/17/20	02/07/20	02/20/20
2020-01	03/23/20	Requirement 6.2 (E): Notify local officials before land application activities begin on a beneficial use site. (Internal Requirement)	02/26/20	02/26/20	03/23/20
2020-02	05/13/20	Requirement 14.2 (E): Sign the Corrective Action Notice Review Form each quarter after reviewing open CANs. (Internal Requirement)	05/13/20	05/13/20	05/13/20
2020-03	06/02/20	Requirement 10.1: Develop and implement standard operating procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts. (Ferric Chloride System Failure)	06/05/20	05/29/20	08/04/20

APPENDIX B: CURRENT GOALS AND OBJECTIVES

GOAL: Improve sludge thickening

Objective: Increase digested feed sludge to 5% as a daily average

ACTION PLAN: VCWRF Thickening Project	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
1. Hire Consultant For Design Work	Ana Peña, Engineering Mgr.	June 15, 2015	Completed (June 15, 2015)	• Environmental Performance • Improve Biosolids Management Practices
2. Finalize Scope of Work	Ana Peña, Engineering Mgr.	July 15, 2015	Completed (July 15, 2015)	
3. Finish conceptual design	Russell Redder, PE	June 30, 2018	Completed (August 31, 2018)	
4. Final design phase (100%)	Maria Wang, PE	January 31, 2020	Completed (March 20, 2020)	
5. Project out to bid	Maria Wang, PE	April 30, 2020	Completed (March 26, 2020)	
6. Begin construction	Maria Wang, PE	November 1, 2020	Completed (August 3, 2020)	
7. Finish construction	Maria Wang, PE	November 1, 2022	Not complete	

Notes/Comments:

The purpose is to look into a new thickening technology that will replace the DAFTs.

- **March 2016**: No changes.
- **June 2016**: Conceptual design date moved forward as it has not been completed.
- **September 2016**: Conceptual design date moved forward as it has not been completed.
- **December 2016**: A pilot project has been completed and the City is currently waiting for recommendations for which thickening technology would be best to implement.
- **March 2017**: Scope of the project changed after the initial pilot study. The conceptual design changed as a result and therefore VCWRF is still awaiting a finished conceptual design.
- **June 2017:** In April 2017 the scope of the project changed to include improvements to the GBTs and replacement of the gravity thickeners. The project is still in the conceptual design phase and VC is waiting for the PER (preliminary engineering report).
- **September 2017**: The contract for the design phase was completed in September 2017 and includes finalizing the PER.
- **December 2017:** The consultant has moved into the final design phase and the estimated completion is December 2018. There are no other updates at this time.
- **March 2018**: The conceptual design phase was delayed due to the consultant having to recalculate sludge flows so as not to over/under design the dewatering equipment (GBTs, rotary drum thickeners).
- **June 2018**: Preliminary Engineering Report (PER) is expected by the end of the month.
- **September 2018**: A workshop was held on September 11, 2018, with Freese & Nichols to settle design issues and discuss a schedule to move the project forward.
- **December 2018**: Design issues have caused delays and the project is currently between the 30%-60% design phase.
- **March 2019**: Design phase is at 30% and comments have not yet been submitted.
- **June 2019**: The project is at 60% design review and the City relayed comments to Freese & Nichols on May 28th. Freese & Nichols is now working toward the 90% design review phase.
- **Sept 2019**: Project is nearing 90% design phase completion, and expected to reach 100% by December, 2019..
- **Dec 2019**. Project is expected to reach 100% design phase completion by January, 2020.
- **March 2020**: Project out to bid and construction should begin in July 2020.
- **June 2020**: City council awarded contract for construction activities on June 23, 2020. Construction is scheduled to start by late Fall of 2020 and is projected to be completed by Winter 2022.
- **September 2020**: Construction started on August 3, 2020 and is projected to be completed by August 2022. The crews are currently demolishing parts of the existing building to prepare for the renovation.

GOAL: Grit Improvement Project

Objective: Reduce the number of work hours associated with unplanned corrective grit related repairs by 25%. This will be based on an annual average reduction in total labor hours dedicated to such repairs.

ACTION PLAN: Grit Removal Project	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
1. Consultant Hired for Design Work	Ana Pena, PE	May 2, 2017	Completed (May 2, 2017)	• Environmental Performance • Improve Biosolids Management Practices
2. Complete Hydraulic Modeling	Maria Wang, PE	October 30, 2019	Completed (October 2019)	
3. Complete 90% Design	Maria Wang, PE	November 22, 2019	Completed (November 04, 2019)	
4. Complete 100 % Design	Maria Wang, PE	Feb 28, 2020	Completed (February 26, 2020)	
5. Project out to bid	Maria Wang, PE	May 1, 2020	Completed (February 27, 2020)	
6. Begin Construction	Maria Wang, PE	June 1, 2020	Completed (August 3, 2020)	
7. Finish Construction	Maria Wang, PE	March 1, 2023	Not Complete	
8. One Year Evaluation Period to Determine Effectiveness (reduction in work hours associated with grit related work orders).	Prasad Vattakunnel	March 1, 2024	Not Complete	

Notes/Comments:

- **June 2019**: The purpose of this project is to improve the influent grit removal process at Village Creek. The improvements are designed to remove 95% of 105-micron particles or larger. This will reduce grit repair related activities throughout Village Creek and improve clarifier performance. The project also includes a low-lift influent lift station to route flow from the south around to the headworks building. Note: Baseline work order data is being compiled and will be included with the next update.
- **Sept 2019**: Hydraulic modeling is being finalized. Project should reach 90& completion by November 2019.
- **Dec**. 2019: Baseline data for work orders will be established starting in January 2020 and will be compiled until construction is completed on the new grit facility. Once the grit facility is operational, two years of data will then be collected to compare its performance versus the baseline conditions. Labor hours will be tracked using the City's computerized maintenance management system (Maximo). Project expected to reach 100% design phase completion by January 2020.
- **March 2020**: Project out to bid and construction should begin in June 2020.
- **June 2020**: City Council awarded contract for construction activities on May 19, 2020. Construction is scheduled to start by Fall of 2020 and is projected to be completed by Spring 2023.
- **September 2020**: Construction began on August 03, 2020 and is expected to finish in August 2022. The crews have begun excavation work to demolish the stairs connecting to the headworks and to explore for utilities.

GOAL: Increase percent solids of biosolids (prior to lime addition)				
Objective: Increase percent solids of biosolids (prior to lime addition) by 3%				
ACTION PLAN: **Dewatering Facility Upgrades**	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	**KEY OUTCOMES**
1. Hire consultant	Steven L. Nutter-Biosolids EMS Mgr.	April 18, 2014	Complete (April 18, 2014)	
2. Electrical System Evaluation	Steven L. Nutter-Biosolids EMS Mgr.	July 11, 2014	Complete (August 27, 2014)	
3. Final Design	Steven L. Nutter-Biosolids EMS Mgr.	September 30, 2014	Complete (August 29, 2014)	
4. Funding approved by City Council	Steven L. Nutter-Biosolids EMS Mgr.	October 16, 2015	Complete (October 16, 2015)	
5. Start construction on 6th belt press, polymer, and lime systems.	Steven L. Nutter-Biosolids EMS Mgr.	August 01, 2016	Complete (May 2, 2016)	
6. Finish construction of 6th belt press, new polymer, and lime systems.	Steven L. Nutter-Biosolids EMS Mgr.	January 31, 2017	Complete (March 24, 2017)	
7. Optimize polymer system	Steven L. Nutter-Biosolids EMS Mgr.	April 30, 2018	Complete (April 30, 2018)	
8. Optimize 6th belt press	Steven L. Nutter-Biosolids EMS Mgr.	July 31, 2018	Complete (July 17, 2018)	
ACTION PLAN: **Replace/Refurbish Belt Presses**	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	• Environmental Performance • Regulatory Compliance • Improve Biosolids Management Practices
1. Develop Bid Specifications	Steven L. Nutter-Biosolids EMS Mgr.	September 12, 2017	Completed	
2. Award bid and obtain funding by City Council	Steven L. Nutter-Biosolids EMS Mgr.	August 7, 2018	Completed (August 2, 2018)	
3. Finish onsite rehab of one belt press	Steven L. Nutter-Biosolids EMS Mgr.	October 4, 2019	Not complete	
4. Start onsite rehab of second belt press	Steven L. Nutter-Biosolids EMS Mgr.	October 7, 2019	Not complete	
5. Finish onsite rehab of second belt press	Steven L. Nutter-Biosolids EMS Mgr.	May 1, 2020	Not complete	
ACTION PLAN: COMPLETED **Increase dewaterability at the belt presses**	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	
1. Corroborate the presence of struvite (collect samples)	Steven L. Nutter-Biosolids EMS Mgr. Ana Peña, Engineering Mgr.	July 7, 2014	Complete (July 7, 2014)	
2. Install ferric sulfate addition station	Steven L. Nutter-Biosolids EMS Mgr. Ana Peña, Engineering Mgr.	August 18, 2014	Complete (August 18, 2014)	
3. Install ferric chloride addition station	Steven L. Nutter-Biosolids EMS Mgr. Ana Peña, Engineering Mgr.	November 25, 2014	Complete (November 24, 2014)	
4. Installation of Total Solids and Total Suspended Solids meters	Steven L. Nutter-Biosolids EMS Mgr. Ana Peña, Engineering Mgr.	April 30, 2015	Complete (April 30, 2015)	
5. Optimize the dosage of ferric chloride	Steven L. Nutter-Biosolids EMS Mgr. Ana Peña, Engineering Mgr.	June 1, 2016	Complete (June 10, 2016)	

ACTION PLAN: Centrifuge/Polymer Pilot Project	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	
1. Start polymer trial (Polydyne)	Eduardo Prospero – Project Manager	June 1, 2020	Completed (June 1, 2020)	• Environmental Performance • Regulatory Compliance • Improve Biosolids Management Practices
2. Complete polymer trial (Polymer)	Eduardo Prospero – Project Manager	September 21, 2020	Complete (September 21, 2020)	
3. Start polymer trial (Orege)	Eduardo Prospero – Project Manager	July 13, 2020	Completed (July 13, 2020)	
4. Complete polymer trial (Orege)	Eduardo Prospero – Project Manager	September 25, 2020	Completed (September 25, 2020)	
5. Start polymer trial (Kemira)	Eduardo Prospero – Project Manager	September 21, 2020	Completed (September 21, 2020)	
6. Complete polymer trial (Kemira)	Eduardo Prospero – Project Manager	October 31, 2020	Completed (September 25, 2020)	
7. Install one mobile centrifuge & begin polymer trials	Eduardo Prospero – Project Manager	July 24, 2020	Completed (July 13, 2020)	
8. Verify effectiveness of mobile centrifuge (increase % solids)	Eduardo Prospero – Project Manager	July 31, 2020	Completed (September 21, 2020)	
9. Install second mobile centrifuge	Eduardo Prospero – Project Manager	September 21, 2020	Completed (September 25, 2020)	
10. Verify effectiveness of second mobile centrifuge (increase % solids)	Eduardo Prospero – Project Manager	October 16, 2020	Not Complete	

Notes/Comments:

- After ferric sulfate was added, it was determined that the dosage and the chemical itself were not as effective as needed. Therefore, a switch was made to ferric chloride, which resulted in a different feed station being built to accommodate the volume necessary to achieve an effective dosage. The addition of ferric chloride should result in the added benefits of minimizing struvite buildup at the dewatering facility and reducing odors.
- Dosage optimization was supposed to be complete by May, but because the HRC was in use (which adds Ferric sulfate), an increase in percent solids could not be attributed to the ferric chloride alone. Therefore, the milestone complete date was changed.
- The TSS meter was relocated in August 2015. As of September 2015, the ferric chloride contract is being extended through the end of the year. Ferric Chloride dose optimization is still being determined.
- As of December 2015, the ferric chloride contract has been extended through the end of January.
- **March 2016:** Ferric chloride has not been optimized yet because VCWRF operations are getting ready to start feeding ferric sulfate in the primaries. This will alter the post-digestion treatment with ferric chloride.
- **June 2016:** During the spring of 2016 ferric sulfate was fed into primary clarifiers 1-6. During this period VC personnel were collecting data to evaluate the effectiveness of the chemical treatment activities. On June 10th, 2016 Tech Services presented the data to senior management at VC. Based on this information the decision was made to perform post digestion treatment with ferric chloride at a concentration of 2 gallons ferric chloride per 1,000 gallons of liquid sludge. If ferric sulfate treatment in the primary area is expanded or reduced then post digestion treatment activities will be reevaluated.
- **September 2016:** Installation of a 6th belt press, lime mixing system, and polymer system has been completed. However, not all of the supporting equipment (pumps, etc.) have arrived on site, and electrical and instrumentation work continues.
- December 2016: The 6th belt press, lime system, and polymer system are undergoing troubleshooting.
- **March 2017:** Construction on the 6th belt press, polymer system, and lime pug mill have been completed. However, troubleshooting activities are still underway. These include 1) 6th belt press tracking and distribution issues, and 2) polymer system performance evaluation is still underway.
- **June 2017**: Work continues to optimize both the newly installed belt press and automated polymer feed system
- September 2017**:** Bid specifications for belt press refurbishment completed. Polymer system optimization delayed due to equipment problems with flow meters. Replacement parts have been ordered and equipment is scheduled to be repaired by November 1, 2017. 6th belt press continues to have issues with tracking and servo motors and drives. Andritz is working to troubleshoot these issues.
- **December 2017:** Additional work is being performed on the polymer system to improve reliability with the addition of float switches and a new enclosure. The expected completion date is February 28th, 2018. Work has continued on the newly installed 6th belt press. Due to performance issues, Andritz is in the process of converting the 6th press from the electric-mechanical combined tensioning and tracking to a separate hydraulic tensioning and tracking. This should improve performance and reliability. The conversion should be completed by the end of January with an additional two months for troubleshooting.
- **March 2018**: 6th Belt press – The belt press is operational, however, Andritz continues to work on it to optimize performance. This includes installation of tension shaft guide pins, fixing the hydraulic pressure switch wiring issue, installation of the HMI program and the modification of the lifter for the sludge leveler. Work will be performed on the polymer system to improve reliability with the addition of float switches and a new enclosure. Additional polymer parts have been shipped to the Dewatering facility and installation work is scheduled to be completed by April 30th, 2018. Refurbish Belt Presses – bid specifications have been submitted to the Purchasing Department for processing prior to bid issuance.
- **June 2018**: 6th Belt press: Conversion to hydraulic tensioning/tracking is complete. Sludge and polymer flows to the press are being optimized. The project is expected to be completed by July 2018. Polymer Feed System: A float control system was added to the new polymer system in April 2018. The system is working as expected and optimization is complete. Refurbish Belt Presses: Andritz was the only bidder for the belt press refurbishment project, which is expected to go to City Council for approval on August 7, 2018. Refurbishment work on two of the belt presses will commence soon thereafter.
- **September 2018**: City Council approved Refurbishment project on August 7, 2018. The City is currently working with Andritz to invoice some of the replacement parts before the end of the fiscal year (Sept 30, 2018). Andritz is tentatively scheduled to begin work on one of the belt presses in late November 2018.

- **December 2018**: The City is waiting for Andritz to submit a formal project schedule and timeline.
- **March 2019**: Andritz has started refurbishment work on Belt Press #2. Rollers, motors and other parts have been stripped from the frame for refurbishment/replacement. Andritz has notified the City that the metal frame needs to be recoated. Andritz has submitted a cost estimate to the City for this work and the City is evaluating it.
- **June 2019:** Andrtiz continues to work on rehabbing belt-press #2. Several additional items have been added to the scope of work, including resurfacing of the metal frames. The belt press is estimated to be shipped back to the City on July 26th.
- **Sept 2019:** Refurbishment work on Belt Press #2 is almost complete and it should be back in operation by the first week in October. Work on the next press will start shortly thereafter.
- **Dec. 2019**: Refurbishment of the second filter belt press is almost complete and should be in operation by middle of January 2020. Punch list items are still being worked on the first refurbished belt press.
- **March 2020:** Refurbishment work on the third belt-press began in January 2020. Refurbishment work on this press should be completed by May 1st 2020.
- **June 2020:** Refurbishment work completed on May 22, 2020. One press still needs to undergo refurbishment – however this will not be done until next fiscal year.
- **September 2020:** Refurbishment of the final press will begin in the next fiscal year (After October 1st, 2020). Action plan added for mobile centrifuge & polymer trials.

GOAL: Increase biosolids storage capacity

Objective: ***Increase biosolids storage capacity from 1.3MG to 6.3 MG***

ACTION PLAN: **Install 5MG liquid sludge storage tank**	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	
1. Hire Consultant for Design Work	Steven L. Nutter-Biosolids EMS Mgr.	April 20, 2015	Complete (April 20, 2015)	• Environmental Performance • Improve Biosolids Management Practices
2. Finalize Scope of Work	Steven L. Nutter-Biosolids EMS Mgr.	July 10, 2015	Complete (July 10, 2015)	
3. City Council Approval	Steven L. Nutter-Biosolids EMS Mgr.	March 31, 2016	Completed (March 29, 2016)	
4. Finish Conceptual design	Steven L. Nutter-Biosolids EMS Mgr.	March 01, 2017	Complete (March 01, 2017)	
5. Final design phase	Steven L. Nutter-Biosolids EMS Mgr.	May 30, 2018	Complete (June 8, 2018)	
6. Project bid closes	Steven L. Nutter-Biosolids EMS Mgr.	June 21, 2018	Complete (June 21, 2018)	
7. Project Awarded (City Council Approval)	Steven L. Nutter-Biosolids EMS Mgr.	September 30, 2018	Complete (September 11, 2018)	
8. Begin construction	Steven L. Nutter-Biosolids EMS Mgr.	December 01, 2018	Complete (December 20, 2018)	
9. Finish construction	Steven L. Nutter-Biosolids EMS Mgr.	August 14, 2020	Not complete	

Notes/Comments:

- **March 2016:** Completion dates have been moved forward.
- **June 2016:** The sixth belt press has been put in place, but is not fully installed/online.
- September 2016**:** Liquid sludge storage tank project has completed the preliminary design phase (conceptual design completed).
- **December 2016**: Facility expansion-Dewatering technologies are being evaluated; Liquid storage tanks-Tank capacities are being evaluated.
- **March 2017:** The City is in the process of reevaluating its long-term biosolids strategy due to the changing regulatory environment and potential cost drivers. The belt press facility expansion is on hold until this evaluation is complete.
- **June 2017:** Currently work is underway to achieve 60% design phase on the tank project.
- **September 2017:** Consultant is still working to achieve 60% design.
- **December 2017:** Sixty percent (60%) design drawings were delivered to the City at the end of December 2017. City staff is reviewing the drawings and preparing comments. The next step is the 90% design phase.
- **March 2018:** Ninety percent design phase was completed March 19, 2018. The next step is to finalize the design.
- **June 2018:** The 100% design phase is complete. The bid phase closed on June 21, 2018, and will be presented to City Council for approval by September 2018.
- **September 2018:** City Council approved the storage tank project on September 11, 2018. A construction schedule has not been created yet, but one should be in place by early November 2018.
- **December 2018:** Site prep work and excavations began December 2018.
- **March 2019:** While excavating it was discovered that the existing filtrate line runs underneath the foundation for the new tank. Therefore, a new filtrate return line was installed and the old line is in the process of being demolished. Engineers are currently reassessing the foundation design to verify its adequacy.

- **June 2019:** Foundation design has been modified and select fill is being added to support the reconfigured design. Work has started on the chemical station and electrical room.
- **September 2019:** Concrete walls have been put in place and preload is underway (shockcrete, wrapping with steel cables). Preload is expected to be completed by early October 2019. Work continues on the electrical room and ferric chloride storage tanks. Yard piping work will commence in October.
- **December 2019.** Work on new 5 MG tank is nearing completion. Contractor is working to finalize electrical and other supporting infrastructure. Work on ferric tanks and Landia Airjets will start in January 2020.
- **March 2020.** Project has experienced delays due to numerous wet weather events and grit cleanout activities. Work on Landia AirJets and electrical infrastructure is still to be completed.
- **June 2020:** Work on tank cleanout activities and air jets is completed. Finishing up electrical work and still need to perform tie-ins of new sludge pipelines
- **September 2020:** Contractor working to complete punch list items for the 5MG storage tank, airjets and ferric chloride pump station.

GOAL: Address public concerns regarding biosolids

Objective: ***Identify four public concerns regarding biosolids***

ACTION PLAN: A- COMPLETED Determine concerns based on feedback received from interested parties.	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	**KEY OUTCOMES**
1. Identify four (4) public/third party concerns	VCWRF Biosolids personnel	September 15, 2015	Complete (September 23, 2015)	• Improve Public Relations
Concern #1= "The City of Fort Worth biosolids web pages are out of date." *Concern #2= "The EPA and TCEQ standards are not strict enough."* Concern #3= "Too much about biosolids are unknown." Concern #4= "Are there pharmaceuticals and personal care products (PPCPs) in biosolids?"				
2a. For each concern, either contact three (3) interested parties or conduct presentation with one (1) interested party*	VCWRF Biosolids personnel	September 30, 2017	**Concern #1 -**Complete (January 13, 2016) **Concern #2** –Complete (March 30, 2017) **Concern #3-**Complete (November 10, 2015) **Concern #4-**Complete (November 10, 2015)	
2b. Create a biosolids specific tour presentation that addresses concerns 2-4.	VCWRF Biosolids personnel	September 30, 2017	Complete (March 30, 2017)	

ACTION PLAN: B- COMPLETED Improve ability to identify concerns via ~~mail outs~~ FAQs placed in information tubes at land application sites	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	
1. Contact the communication and outreach division to determine if mail outs (surveys, fact sheets, etc.) are feasible	VCWRF Biosolids personnel	July 31, 2015	Complete (June 12, 2015)	• Improve Public Relations
2. Determine if the GIS department can acquire mailing addresses for residents around land sites	VCWRF Biosolids personnel	August 7, 2015	Complete (September 14, 2015)	
3. Develop information FAQ to be mailed to interested parties	VCWRF Biosolids personnel	October 15, 2015	Complete (December 21, 2015)	
4. Determine if addresses can be purchased to mail out FAQ	VCWRF Biosolids personnel	October 31, 2015	Complete (December 21, 2015)	
5. Determine if FAQ can be mailed to addresses surrounding land application sites	VCWRF Biosolids personnel	October 31, 2015	Complete (December 21, 2015)	
6. Begin placing FAQ in information tubes attached to site notification signs at land application site entrances	VCWRF Biosolids personnel	March 25, 2016	Complete (March 25, 2016)	

7. Evaluate the effectiveness of the information tubes by tracking the amount of FAQ taken	VCWRF Biosolids personnel	November 30, 2016	Complete (December 29, 2016)	• Improve Public Relations

ACTION PLAN: C-COMPLETED	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	
Improve ability to identify concerns using the Water Department's social media accounts				• Improve Public Relations
1. Contact the Communication and Outreach division to determine what content can be posted to the Water Department's social media accounts (Facebook & Twitter)	VCWRF Biosolids personnel	July 31, 2015	Complete (June 12, 2015)	
2. Begin posting biosolids information to Water Department's Facebook account (this will include any facts not listed on the FAQ sheet)	VCWRF Biosolids personnel	March 31, 2017	Complete (September 23, 2017)	

ACTION PLAN: D Improve ability to address public concerns by updating Biosolids webpage	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
1a. Update grammar and typographical errors	VCWRF Biosolids personnel	August 31, 2015	Complete (August 17, 2015)	• Improve Public Relations
1b. Remove outdated information	VCWRF Biosolids personnel	August 31, 2015	Complete (September 17, 2015)	
1c. Update tables on web pages	VCWRF Biosolids personnel	August 31, 2015	Complete (January 13, 2016)	
2a. Add additional webpage for biosolids brochure	VCWRF Biosolids personnel	December 31, 2018	Complete (October 25, 2018)	
2b. Add additional webpage for FAQ (developed from 2nd action plan above)	VCWRF Biosolids personnel	December 31, 2018	Complete (October 25, 2018)	

ACTION PLAN: E -Completed Improve ability to address or identify concerns via tour survey	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	
1. Develop a survey to gauge the public's general knowledge/feelings about biosolids	VCWRF Biosolids personnel	December 31, 2015	Complete (October 29, 2015)	• Improve Public Relations
2. Preliminary implementation of a survey to determine what metrics can be obtained and used for quantifying public outreach responses	VCWRF Biosolids personnel	December 31, 2015	Complete (November 15, 2015)	
3. Begin using survey on a regular basis during tours when possible	VCWRF Biosolids personnel	December 31, 2015	Complete (November 15, 2015)	
4. Evaluate metrics and plot data to determine the effectiveness of survey and tour presentations	VCWRF Biosolids personnel	July 31, 2016	Complete (July 13, 2016)	

ACTION PLAN: F Develop 2 educational videos relating to biosolids concerns and issues.	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	
1. Meeting with Water Department public outreach personnel to determine video options	Glory Walker, Biosolids Public Outreach Coordinator	February 01, 2017	Complete (February 01, 2017)	• Improve Public Relations
2. Brainstorming meeting among biosolids personnel to discuss options and approach	VCWRF Biosolids personnel	February 02, 2017	Complete (February 02, 2017)	
3. Determine the themes of videos	VCWRF Biosolids personnel	February 02, 2017	Complete (February 02, 2017)	
4. Determine the method of production	VCWRF Biosolids personnel	April 31, 2018	Complete (March 14, 2018)	

5. Start video production (General Biosolids Information)	VCWRF Biosolids personnel, Communications Specialist	August 31, 2018	Complete (March 14, 2018)	
6. Finalize video for viewing (General Biosolids Information)	VCWRF Biosolids personnel, Communications Specialist	July 31, 2018	Complete (August 13, 2018)	• Improve Public Relations
7. Start video production (Farmer-site in Biosolids Program)	VCWRF Biosolids personnel, Communications Specialist	November 1, 2019	Not Complete (PROJECT ON HOLD – SEE FOOTNOTE FOR DEC 2019)	
8. Finalize video for viewing (Farmer-site in Biosolids Program)	VCWRF Biosolids personnel, Communications Specialist	December 13, 2019	Not Complete	

ACTION PLAN: G Develop & implement public outreach activities to address public concerns on pharmaceuticals	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	
1. Identify/develop public outreach events that biosolids staff could attend to distribute information on the benefits of pharmaceutical take back programs	Glory Walker, Biosolids Public Outreach Coordinator	March 31, 2020	Not Complete (PROJECT ON HOLD – SEE FOOTNOTE FOR MAR 2020)	• Improve Public Relations
2. Attend four (4) public outreach events to distribute information on the benefits of pharmaceutical take back programs	Glory Walker, Biosolids Public Outreach Coordinator	December 31, 2020	Not Complete (PROJECT ON HOLD – SEE FOOTNOTE FOR MAR 2020)	

Action Plan A

- The FAQ addresses Concerns #1 and # 3 and will be available to the public via tours or information tubes attached to land application signs at site entrances.
- March 2016: Concern #1 has been completed, but the date is not known. When details can be acquired, the date will be inserted.
- July 2016: Concern #2 will be addressed in a presentation to be developed by the end of 2016 that will be specific to the biosolids program that can be used for special tour groups or interested parties. Concern #4 was addressed in a brochure that was completed in November but not printed until April 2016.
- September 2016: Concern #2 will be addressed in a presentation to be developed by the end of 2016 that will be specific to the biosolids program that can be used for special tour groups or interested parties.
- December 2016: The tour presentation that will address concern #2 (as well as #3 and #4) is still being developed. This presentation may be incorporated into the tours at Village Creek.
- **March 2017:** The four concerns identified have all been addressed in various public outreach materials. This action plan is complete.

Action Plan B

- The GIS department was contacted on August 7th regarding whether they were able to gather mailing addresses for residents surrounding land application sites. On September 14, 2015, the GIS department notified biosolids personnel that they were unable to acquire the addresses.
- On December 21, 2015, it was determined that mailing fact sheets is not a viable option for the biosolids program. Instead, fact sheets will be placed in an information tube and attached to the site notification signs located at site entrances. Placing a certain amount of fact sheets in the tubes and counting them during inspections will allow us to keep track of how many are taken introducing a potential metric with which to measure this outreach effort.
- March 2016: Information tubes were attached to site notification signs on 03-25-16 and a certain number of Frequently Asked Questions were placed inside. This information will be tracked to determine how effective the Information tubes are. Two more steps were added to reflect the change to this action plan.
- July 2016**:** Since Infotubes with FAQs have been posted on land application signs; approximately 34% of them have been taken. Sign/Infotube visibility, site entrance location, and number of FAQs taken per person are all variables that can affect the percent of FAQ taken at land application sites. Data collection for FAQs will be ongoing even after the action plan is completed.
- September 2016: No changes.
- **December 2016:** Since March 2016, 250 FAQs have been placed in infotubes at 19 land application sites. Of those 250 FAQs, 66 (or 26%) have been taken by citizens. As previously mentioned, sign/infotube visibility, site entrance location, and number of FAQs taken per person are all variables that can affect the percent of FAQ taken at land application sites. New infotubes were purchased in November 2016 that allows for higher placement on land application signs, which will increase their visibility and hopefully lead to more FAQs taken by citizens. This action plan is complete. However, data collection for FAQs will continue.

Action Plan C

- When lime is removed, and it can be confirmed that the biosolids odors have improved for the long term, information will begin being posted to the Water Department's Facebook page (where the application is occurring, general information about the biosolids program, etc.)
- March 2016: Completion date has been moved forward for social media postings.
- July 2016: Currently waiting for Chlorine dioxide to be approved for long-term biosolids treatment before posting information to social media regarding biosolids program and biosolids quality.
- September 2016: No changes.
- December 2016: The usage of chlorine dioxide is now in place and biosolids odors have improved. Posting biosolids information to the Water Department's social media accounts is still under evaluation.
- March 2017: The City of Fort Worth is in the process of finalizing its published materials criteria. Once this has been completed, biosolids personnel can revisit posting biosolids related material to the Water Department's social media accounts.

- June 2017: The position responsible for posting information to the Water Department's social media accounts is currently vacant. A public outreach meeting is scheduled for mid-July to discuss whether biosolids information will be able to be posted in the interim.
- September 2017: On September 21, 2017, staff from the Water Department's Communication and Outreach division drafted several biosolids social media posts. After obtaining our approval on the proposed social media posts, the Water Department began posting biosolids information to the department's Facebook account, along with #FWBiosolids on September 23, 2017. This action plan is complete.

Action Plan D

- Due to changes to the City's website policies the Water Department's Communication and Outreach division informed biosolids personnel that posting PDF documents to the City's web pages should be avoided as much as possible to comply with the Americans with Disabilities Act (ADA) requirements. Therefore, new information will be added as additional web pages if possible. See Action Plan: Add additional biosolids webpages.
  March 2016: Completion dates have been moved forward due to complications in posting information to the City's website. Step 1c has been completed, but the date is not known. When details can be acquired, the date will be inserted.
- July 2016: Reference material that was used to develop facts not listed in the FAQ is being acquired to be made available to the public when new biosolids web pages can be posted.
- September 2016: No Changes.
- December 2016: Action Plan D-2c is being absorbed by Action Plan C-1. Public Outreach personnel within the Water Department will eventually use biosolids facts on the Water Department's social media accounts to extend biosolids information to the general public.
- March 2017: The City of Fort Worth is in the process of finalizing its published materials criteria. Once this has been completed, biosolids personnel can revisit posting biosolids related material to the ~~Water Department's social media accounts~~ City's website.
- June 2017: In April 2017, the City completed its new Branding and Style Guide for published materials. Biosolids materials will need to be rebranded to abide by the City's requirements before they are posted on the City's website.
- September 2017: The FAQ sheet and About Biosolids sheet were redesigned to comply with the City's Branding and Style Guide. On July 17 and 18, 2017, these outreach materials were emailed to the Water Department's Communication and Outreach division with the understanding that these items would be posted to the website as soon as possible. However, to date, these items have not been posted to the City's website.
- December 2017: Organizational changes to the Water Department have delayed this action item. An additional employee has been hired to work on public outreach efforts in the Water Department. When this individual has been familiarized with the wastewater treatment and biosolids processes, it is anticipated that he/she will be able to assist the Biosolids Program with public outreach efforts.
- March 2018: A new Communications Specialist with the Water Department met with the Biosolids Public Outreach Coordinator on March 14, 2018, to take a wastewater and dewatering plant tour to become familiar with the processes. The future of biosolids public outreach efforts was discussed during this time as well. In the near future, the Communications Specialist will visit a land application site to get more insight into the biosolids program. The intent is to start posting content on social media as soon as the Communications Specialist is familiar with the Biosolids Program.
- **June 2018**: The Communications Specialist in the Customer Care Division met with the Biosolids Public Outreach Coordinator on May 31, 2018, to visit a land application site and observe biosolids land application activities. With more familiarity with the Biosolids Program, the Communications Specialist has begun compiling content for the biosolids pages on the City's website.
- **September 2018**: While progress has been made in regards to public outreach efforts, availability of public outreach personnel has delayed the posting of additional biosolids information for the City's web pages.

Action Plan E

- It is anticipated that possible metrics stemming from the responses gathered from the survey will include: how familiar people are with the term "biosolids,' what people's general attitude is towards biosolids, and if their general attitude changes after seeing a presentation on wastewater treatment and biosolids.
- March 2016: The completion date has been moved forward to accumulate more tour data.
- **July 2016:** Since surveys began being distributed during Village Creek tours in November, 103 comments have been elicited from tour participants. Past tours that did not include a biosolids survey, rarely garnered any feedback about biosolids. Surveys have been an effective tool at eliciting comments and questions, and different metrics have been gathered based on the survey responses. This action plan is complete, but tour data will continue to be collected. Additional notes are available upon request.

Action Plan F

- **March 2017:** New action plan.
- **June 2017:** A meeting will occur in July to discuss the direction of this action plan.
- **September 2017:** The biosolids video project has been delayed due to limited manpower. However, the Village Creek Water Reclamation Facility (VCWRF) recognizes the value in this type of public outreach activity. VCWRF should be able to dedicate more resources to this project in the upcoming year.
- **December 2017:** A meeting was held on 12-14-17 amongst the biosolids personnel to discuss the feasibility of the educational videos. Additional themes were discussed. It is anticipated that additional resources from the Water Department's public outreach personnel will be available in the near future to assist with this project.
- **March 2018:** Water Conservation Specialists recorded a short video with an overview of Village Creek and the Biosolids Program. This video was posted to the City's Water Department Facebook page on World Water Day (3-22-18). This video, along with the Water Conservation Specialists and new Communication Specialist, may serve as a reference for the Biosolids Personnel when developing the educational videos for the Biosolids Program.
- **June 2018:** During the March 14, 2018 meeting, it was decided to use a GoPro to shoot a video for the biosolids educational videos. The Communication Specialist began shooting video on this day while touring VCWRF and the Dewatering Facility. The content of this video will focus on general information regarding the Biosolids Program.
- **September 2018:** A video highlighting the production of biosolids was completed and posted to the City's Water Department Facebook account for public viewing on 08/13/2018. The video was "Liked" 16 times and shared 3 times. The same video was shared on the City's Water Department Twitter account and

"Liked" 2 times and viewed 56 times. An additional biosolids video featuring a landowner in the Biosolids Program is still being planned. Due to the availability of personnel and inclement weather, it has been delayed.

- **December 2018**: The production of the biosolids video featuring a landowner has been pushed back to the beginning of January due to the availability of personnel.
- **March 2019:** Production of the landowner educational video is set to start the first week of June 2019.
- **June 2019:** Production was delayed during June but is scheduled to be completed on July 2nd and posted to the Water Departments social media accounts and/or the City's website by July 31st.
- **September 2019:** Production of the landowner educational video was scheduled and delayed multiple times, due to farmer's schedule and the Water Department's public outreach personnel lack of availability. An attempt will be made again later this year.
- **December 2019 –** Biosolids contract was awarded to a new third party company on December 10th, 2019. It is important to note that the third party biosolids contractors have the land application agreements and relationships with the each of the landowners. As such the biosolids video project will be put on hold until the City knows which land application sites (and landowners) are going to be in the biosolids program. This project will be move to the CAPs list during the March 2020 quarterly updated until SMART criteria can be re-established with the new biosolids contractor.
- **March 2020 –** New biosolids contractor (Synagro) assumed responsibility for dewatering, transportation and land application on April 1, 2020. In the coming weeks the City will schedule a meeting with Synagro to discuss the feasibility of a "farmer-centric" public outreach video. If deemed viable this goal will be updated with revised SMART criteria, otherwise it will be removed
- **June 2020 –** Goal has not been updated
- **September 2020 –** Project added to CAP list. Initial discussions with Biosolids Contractor on video feasibility.

Action Plan G

- **March 2020** – This goal is on hold due to the COVID-19 pandemic. Attending large public meetings is currently prohibited due to Fort Worth's social distancing protocols. For the next quarterly update the City will evaluate other public outreach avenues (electronic media) to see if it can implement a goal that meets SMART criteria.
- **June 2020** – Goal has not been updated
- **September 2020** – City is actively working to identify public/electronic events that could be utilized to distribute biosolids information. This is problematic due to the COVID-19 pandemic.

GOAL: Address public concerns regarding biosolids

Objective: ***Increase the input of concerns by 20%***

ACTION PLAN A: **Online Biosolids Survey**	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	**KEY OUTCOMES**
1. Develop online survey questions	VCWRF Biosolids personnel	April 30, 2019	Complete (April 30, 2019)	• Improve Public Relations
2. Submit questions to Communication Specialist for review	Communication Specialist	May 1, 2019	Complete (May 1, 2019)	
3. Post survey to City's Website	Communication Specialist	July 31, 2019	Complete (July 2, 2019)	
4. Edit FAQ sheet to include link to online survey	VCWRF Biosolids personnel	August 21, 2019	Complete (July 2, 2019)	
5. QR codes added to land application signs	VCWRF Biosolids personnel	June 30, 2020	Not Complete (July 9, 2020)	
6. Evaluate and quantify responses to identify concerns	VCWRF Biosolids personnel	Dec 30, 2020	Not complete	

ACTION PLAN B: Increase number of biosolids-only tour presentations	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	
1. Update current tour presentation to include advertisement for future biosolids-only presentations	VCWRF Biosolids personnel	September 1, 2019	Complete (July 2, 2019)	• Improve Public Relations
2. Schedule biosolids-only presentations at TCU and/or UTA 3. (surveys given at beginning and end of presentation)	VCWRF Biosolids personnel	December 31, 2019	Complete (August 22, 2019)	
4. Evaluate biosolids-only survey responses after tours to identify concerns	VCWRF Biosolids personnel	December 31, 2020	Not complete	

Action Plan A:

- **March 2019:** This is a new public outreach goal to increase the number of concerns we elicit from public outreach efforts.
- **April 2019**: This goal's objective was amended after further evaluating public comment data and determining that 10% was more realistic.
- **June 2019:** The online survey is projected to be posted to the City's website by July 31st.
  Scheduling biosolids-only tours will likely occur during the Fall school semester.
- **August 2019:** Procurement of the "rider" signs was pushed until the end of November 2019, due to budget constraints and a purchasing freeze at the end of the fiscal year (October 2018 through September 2019).
- **Dec 2019:** Project will be extended to account for a new biosolids contractor and to verify what type of signage they will be utilizing at the land application sites.
- **March 2020 –** New biosolids contractor (Synagro) assumed responsibility for dewatering, transportation and land application on April 1, 2020. This also includes biosolids public outreach activities. In the coming weeks the City will schedule a meeting with Synagro to discuss the feasibility of "rider signs" or other measures to facilitate survey responses.
- **June 2020 –** Goal has not been updated
- **September 2020** – QR codes added to land application signage. Working with Biosolids Contractor to improve response.

Action Plan B

- **Dec 2019:** No update.
- **March 2020 –** Due to the COVID-19 pandemic all tours at Village Creek have been cancelled. Surveys will need to be gathered by other means.
- **June 2020 –** Goal has not been updated.
- **September2020 –** Tours are on hold due to COVID-19. Goal may need to be moved to CAP list due to concerns with SMART criteria.

GOAL: Design, Build and Operate New Biosolids Facility

Objective: Transition from Class AB Biosolids to Class A Biosolids

ACTION PLAN: Design & Build Rotary Drum Dryer Facility	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	KEY OUTCOMES
1. RFQ Issuance	Steven L. Nutter-Biosolids EMS Mgr	January 10, 2019	Complete (January 10, 2019)	• Environmental Performance • Improve Biosolids Management Practices
2. RFQ Submittals	Steven L. Nutter-Biosolids EMS Mgr	March 7, 2019	Complete (March 7, 2019)	
3. RFP Issuance	Steven L. Nutter-Biosolids EMS Mgr	May 31, 2019	Complete (June 7, 2019)	
4. RFP Submittals	Steven L. Nutter-Biosolids EMS Mgr	August 22, 2019	Complete (September 5, 2019)	
5. Preferred Proponent Notification	Steven L. Nutter-Biosolids EMS Mgr	September 20, 2019	Complete (Sept 20, 2019)	
6. City Council Approval	Steven L. Nutter-Biosolids EMS Mgr	December 1, 2019	Complete (Dec 10, 2019)	
7. Design-Build Notice to Proceed	Steven L. Nutter-Biosolids EMS Mgr	January 1, 2020	Complete (December 30, 2019)	
8. Complete Design Work	Steven L. Nutter-Biosolids EMS Mgr	December 1, 2020	Not Complete	
9. Begin Construction	Steven L. Nutter-Biosolids EMS Mgr	August 13, 2020	Complete (July 14, 2020)	
10. Project Acceptance for Production of Class A Biosolids	Steven L. Nutter-Biosolids EMS Mgr	July 31, 2022	Not Complete	

Notes/Comments:

- **June 2019:** RFP has been issued with a draft contract. RFP submittals are due August 22, 2019.
- **September 2019:** RFP submittals have been received and are being reviewed by the City. Preferred Proponent notification should occur before the end of September.
- **December 2019:** City Council approved funding for a long term ODBO contract (operate, design, build, operate) to dewater and beneficially reuse biosolids. This will start with a two and a half year interim phase where the contractor will continue to produce Class AB biosolids. During the interim phase, the contractor will design and build a new rotary drum dryer facility to produce Class A biosolids. Once construction of the new facility is completed, the contractor will primarily produce Class A biosolids for land application and/or product distribution.
- **March 2020:** City & Biosolids Contractor working to complete 30% design work. Construction activities have not yet started.
- **June 2020:** Design work completed. Drilling and foundation construction scheduled to begin in July 2020.
- **September 2020:** Construction activities started on July 14, 2020. Drilling and foundation construction approximately 85% complete. Contractor is working to install electrical conduits. As of September 2020, the design phase has reached 90%. Expect to reach 100% by December 2020.

GOAL: Asset Management Program – Existing Biosolids Facility				
Objective: Implement computerized maintenance management system (Maximo) for 100% of the existing biosolids infrastructure (belt press building, storage tanks, pump station, etc). Implementation will include issuance of work orders for predictive, preventative, and corrective maintenance activities.				
ACTION PLAN: **Implement Maximo**	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	**KEY OUTCOMES**
1. Meet with Water Department's Asset Management Team to strategize on Maximo implementation	Steven L. Nutter-Biosolids EMS Mgr Eduardo Prospero – Project Mgr	November 25, 2020	Not Complete	• Improve Biosolids Management Practices
2. Secure Maximo License	Eduardo Prospero – Project Mgr	February 28, 2021	Not Complete	
3. Maximo training for Biosolids Contractor	Eduardo Prospero – Project Mgr	May 31, 2021	Not Complete	
4. Begin entering assets into Maximo	Eduardo Prospero – Project Mgr	June 1, 2021	Not Complete	
5. All assets entered into Maximo; work orders issued for all maintenance activities	Eduardo Prospero – Project Mgr	December 31, 2021	Not Complete	
Notes/Comments:				
• **September 2020:** Goal & Objective created for Maximo implementation (Biosolids Contract Requirement).				

GOAL: Update Village Creek Standard Operating Procedures (SOPs)				
Objective: Update, Review & Revise 100% of Village Creeks SOPs				
ACTION PLAN: **Update Village Creek SOPs**	**RESPONSIBLE PARTY**	**MILESTONE COMPLETION DATE**	**STATUS**	**KEY OUTCOMES**
1. Develop updated format for SOPs	Migdalia Jackson, Asst Oper Supt Steven L. Nutter-Biosolids EMS Mgr	September 25, 2020	Completed (September 25, 2020)	• Improve Biosolids Management Practices
2. Begin review and update of existing SOPs	Migdalia Jackson, Asst Oper Supt Steven L. Nutter-Biosolids EMS Mgr	September 25, 2020	Completed (September 25, 2020)	
3. Complete review of existing SOPs	Migdalia Jackson, Asst Oper Supt Steven L. Nutter-Biosolids EMS Mgr	March 31, 2020	Not Complete	
Notes/Comments:				
• **September 2020:** Goal & Objective created for updating Village Creek's SOPs.				