BIOSOLIDS EMS — ELEMENT 5.0
BIOSOLIDS GOALS AND OBJECTIVES

REVISION	EFFECTIVE DATE	APPROVAL SIGNATURE
17	December 10, 2020	

PURPOSE

The purpose of this element is to drive the continual improvement of the beneficial reuse/recycling operation by establishing Specific, Measurable, Achievable, Relevant and Time-bounded (SMART) long-term program goals and associated short-term objectives for biosolids management activities. The primary standards and expectations to ensure operational excellence within the City of Fort Worth biosolids program are outlined as follows:

City of Forth Worth Biosolids Policy

The City of Fort Worth's Biosolids Program is committed to promoting the beneficial and sustainable use of biosolids while utilizing cost-effective and environmentally-acceptable management practices. To support this policy, the City and its Contractor are committed to:

- Following the *Code of Good Practice* developed by the National Biosolids Partnership
- Optimizing biosolids management practices to help maximize resource recovery, with the stated goal of reusing/recycling 100% of all biosolids
- Complying with local, state and federal requirements regarding biosolids production, management, testing, storage, transportation, and end use or disposal
- Fully implementing the Environmental Management System to continually improve overall environmental performance
- Utilizing goals and objectives and preventative actions to drive continual program improvement
- Building and maintaining positive relationships with the public and interested parties
- Researching and implementing new technologies that optimize potential future application or end use

Policies define the values and goals of an organization and provide guidance about how to achieve objectives. The Biosolids Policy within this element reflects the City of Fort Worth's vision statement; *"Fort Worth will be the most livable and best managed city in the country,"* and the Water Department's mission statement; "*Enable our community to thrive with clean water done right every time."* The way that an organization manages policies is important so that employees understand roles and responsibilities. Effective policy management is a continuous process of planning and budgeting that creates goals and objectives, sets expectations, provides a direction for decisions, and holds employees accountable.

SCOPE

The goals and objectives developed under this element apply to all critical control points in the Biosolids Value Chain and all EMS elements.

KEY WORDS

- Biosolids Management Program
- Biosolids Program Goal(s)
- Biosolids Program Objective(s)
- Biosolids Public Acceptance Requirements
- Biosolids Value Chain

- Critical Control Points
- Interested Parties
- Strategic Goals
- Fort Worth Comprehensive Business Plan
- Water Department Master Plan
- Water Department Business Plan

RESPONSIBILITY

The Assistant Director (Plant Operations), Biosolids EMS Manager (Plant Operations), EMS Management Team and the Biosolids Contractor evaluate input from City personnel and interested parties. Using this input and the framework established by the Biosolids Policy, Code of Good Practice, and the Fort Worth Comprehensive Business Plan, goals and objectives are formulated for the Village Creek Water Reclamation Facility (VCWRF) and the Biosolids Program. Refer to Element 7.0 for a list of roles and responsibilities throughout the biosolids value chain.

PROCEDURE

The Biosolids EMS Management Team collects data, receives public input, and monitors daily operations to identify areas within the Biosolids Program that need improvement. The team reviews and discusses issues, sets goals and develops action plans with timelines to track progress and ensure successful completion.

Every team member who is assigned an action plan, regularly reviews the status of ongoing activities with the Biosolids EMS Manager. The Biosolids EMS Coordinator updates the existing goals, objectives, and action plans in the Biosolids Goals and Objectives Summary Table (Appendix 5.A) and presents them to the EMS Management Team. The Assistant Director and support staff evaluates and prioritizes biosolids program goals along with all other proposed VCWRF projects. During this process, the work most urgently needed is selected and incorporated into the annual VCWRF budget and Water Department Business Plan. Then, the Water Department Director approves the budget and Water Department Business Plan before it is submitted to the City Council for final approval. Once the City Council approves the budget, money is allocated to fund the approved plan. The Biosolids Contractor and the City develop a business contract that includes precise details and descriptions of how the work will be accomplished to achieve the biosolids goals and objectives. The Biosolids Contractor then allocates the necessary funds within their company's budget to accomplish the contract requirements.

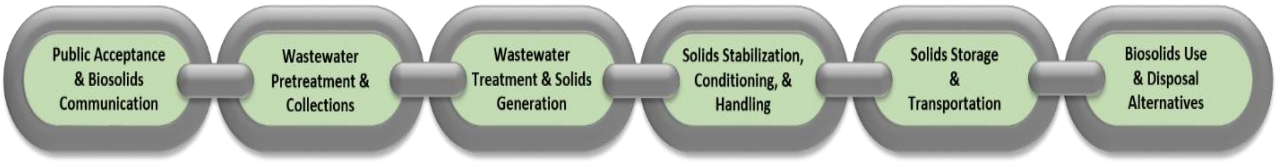

Figure 5.1 Biosolids Value Chain illustrating how various aspects of biosolids production are linked together.

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SMART Criteria
During the development of goals and objectives, SMART criteria are utilized to clarify ideas, focus efforts and use time and resources effectively to achieve the desired outcome, as follows:

Table 5.1 SMART Criteria

Specific:	Each goal shall detail specific actions that will improve one or more of the following: environmental performance, biosolids management practices, regulatory compliance, and/or public relations.
Measurable:	Each goal should have a quantifiable performance measure that shows improvement in one or more of the following: environmental performance, biosolids management practices, regulatory compliance, and/or public relations.
Achievable:	The goal should be realistic and feasible (financially, technologically, etc.).
Relevant:	The goal should be strategically significant and consistent with Fort Worth's biosolids management policy
Time-bounded:	The goal should be grounded within a realistic timeframe to track its progress and status.

Review
Throughout the year, The EMS Management Team members, assigned personnel, and/or the Biosolids Contractor discuss specific projects, review steps taken to accomplish goals and objectives, and recommend ideas and actions to improve the effectiveness of the biosolids program at the following meetings:

- **Biosolids Project Progress Meetings between City and Contractor**
  During each progress meeting, The City and Contractor discuss what has been accomplished to achieve the biosolids goals and objectives, identify any problems, roadblocks or challenges, and ensure that each project remains on schedule towards completion. (Refer to the Biosolids Goals and Objectives Summary Table -Appendix 5.A).

- **Internal Audit (Element 16.0)**
  During each internal EMS audit, the Biosolids EMS Manager, EMS Management Team and EMS auditors review the progress toward the goals and objectives as described in the action plans of Appendix 5.A. The EMS auditors document progress toward the goals and objectives and/or recommend changes to the program in the audit report. The Biosolids EMS Coordinator notes the auditor's comments and recommendations in the "Status" field of the Biosolids Goals and Objectives Summary Table and submits the updated table to the EMS Management Team for approval. Upon approval, the Biosolids EMS Coordinator incorporates the updated Goals and Objectives Summary Table (Appendix 5.A) into the EMS manual.

- **EMS Management Review (Element 17.0)**
  Using the EMS Audit Reports and updated Biosolids Goals and Objectives Summary Table 5.A, the EMS Management Team:

  1) evaluates the status of the biosolids goals and objectives at least once per year,
  2) determines the validity of the existing goals and objectives based on data collected during the year,
  3) establishes new goals and objectives to continually improve the biosolids program and
  4) assigns personnel to formulate action plans for each goal.

Updates

Once per quarter (see EMS Planning Schedule for specific timeline) the Biosolids EMS Coordinator shall meet with the responsible individual(s) to track progress towards completion of goals and objectives. Once a goal is completed, Appendix 5.A will be updated. All completed goals will be moved to the end of the quarterly goals and formally removed after the end of the reporting year (July 31st), which will be reflected in the quarterly update in September. Each quarterly update shall also track the progress towards completion of projects on the Miscellaneous Project List (MPL), and evaluate whether or not any of the projects are ready to be adopted as formal goals & objectives. Refer to Element 14.0 and the Miscellaneous Project List section of this element for additional information on the MPL List.

Proactive Public Participation

Throughout the year, comments and ideas from proactive public participation (see Element 6.0) will be evaluated and utilized to develop new goals and objectives. The evaluation of comments will be documented with the Public Participation Feedback Evaluation Form. This document will be completed and filed in the Goals and Objectives Binder. When a new goal or objective is developed based on this method, Appendix 5.A will be updated. The new goal/objective will include a footnote describing how public participation assisted in the development of the specific goal/objective. The following flowchart illustrates the process in which public feedback/comments will be assessed for the development of new goals.

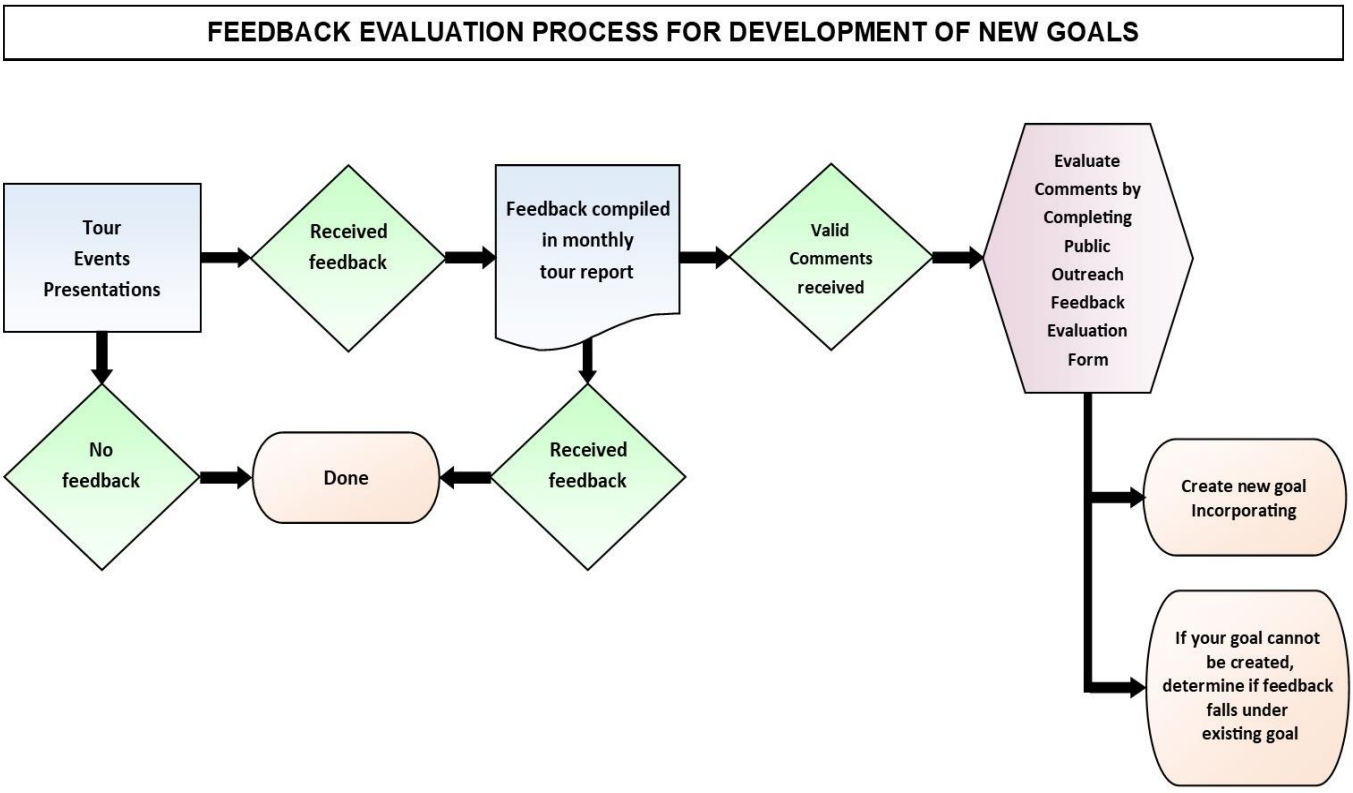

Figure 5.2 Feedback Evaluation Process for Development of New Goals

Miscellaneous Project List (MPL)
The Miscellaneous Project List (MPL) is separate from the Biosolids Goals & Objectives Summary Table (Appendix 5.A), and will be used for projects that fall into one of four broad categories:

- Future projects that are still "over the horizon" and currently do not meet SMART criteria. Once the project scope, resources and schedule are better understood then it will be adopted as a formal Goal & Objective with SMART criteria;
- Projects that are created in response to corrective action notices (CANs) but do not currently meet SMART criteria. Once the underlying issues associated with the nonconformance are better understood, as well as the project's scope, scale and resources needed to address the problem(s), then the project will be adopted as a formal Goal & Objective that meets SMART criteria;
- Routine operation and maintenance projects that, due to their size and importance, have a direct impact on the biosolids value chain and for which the City wishes to track via the MPL. For example, the annual digester cleaning program would qualify as one such project.
- Other plant projects that the City wishes to track using the MPL.

The MPL will be updated on the same quarterly schedule as the Goals & Objectives.

REFERENCES

- BMP Guidance Manual, (NBP, June 2011)
- Code of Good Practice, (NBP, June 2011)
- Manual of Good Practice for Biosolids, (NBP, 2011)
- City of Fort Worth Water Department Business Plan Latest Edition
- City of Fort Worth Water Department Mission Statement
- Public Outreach Feedback Evaluation Form
- Miscellaneous Project List

EMS Cross References:

- Element 2.0 Biosolids Management Policy
- Element 3.0 Critical Control Points
- Element 4.0 Legal and Other Requirements
- Element 6.0 Public Participation in Planning
- Element 7.0 Roles and Responsibilities
- Element 13.0 Monitoring and Measurement
- Element 14.0 Nonconformance: Preventative & Corrective Action
- Element 16.0 Internal EMS Audit
- Element 17.0 Periodic Management Review of Performance

ATTACHMENTS

- Public Outreach Feedback Evaluation Form

REVISION HISTORY

Revision #	Date	Revision Description
17	12-10-2020	Revised the Purpose, Procedure, Review and Update sections, Revised Figure 5.2, replaced the CAP List with the Miscellaneous Project List, added MPL information section.
16	10/14/2019	Modified update provisions to include information on CAP List and clarified language Figure 5-2.
15	09/21/2018	Update to Responsibility, Procedure, and References sections; addition of Biosolids Value Chain figure
14	08/03/2016	Merged element to new format design, updated Biosolids Policy, updated Review and Update procedures.
13	01/06/2014	Update to Procedure and Proactive Public Participation sections, included Public Outreach Feedback Evaluation Form.
12	08/05/2013	Updated references
11	07/29/2011	Added Public Participation information, fixed typographical errors, revise goals and objectives
10	10/16/2010	Update responsibilities, review criteria for goals & objectives, and references. Revise goals and targets.
09	09/23/2010	2010 Management Review (Revision – Appendix 5a)
08	04/08/2009	2008 Management Review (Revision - Appendix 5a)
07	09/07/2008	Audit (YR3) 2008
06	05/15/2008	Audit (YR2) 2007 and 2007 Management Review
05	06/29/2007	Audit (YR1) 2006
04	05/10/2006	Goal Revisions from 2005 Management Review
03	05/26/2005	3rd Party Audit Phase I Revisions
02	11/29/2004	2004 Issue
01	10/01/2004	Approval Draft
SR	01/30/2004	Issued for Status Review

Biosolids Public Outreach Feedback Evaluation Form

Date:			
Public Outreach Type:	☐ VC Tour ☐ Dewatering Tour	☐ Presentation ☐ Brochure Distribution ☐ Event	Name of event:
Feedback received:			
Can feedback be incorporated into a new goal?	Yes☐ No☐		
If yes, inform Biosolids EMS Manager in order to develop new goal concerning feedback.			
If no, why not:			
Does feedback fall under an existing goal?	Yes☐ No☐	Current Goal:	
If no, why not:			

Date:			
Public Outreach Type:	☐ VC Tour ☐ Dewatering Tour	☐ Presentation ☐ Brochure Distribution ☐ Event	Name of event:
Feedback received:			
Can feedback be incorporated into a new goal?	Yes☐ No☐		
If yes, inform Biosolids EMS Manager in order to develop new goal concerning feedback.			
If no, why not:			
Does feedback fall under an existing goal?	Yes☐ No☐	Current Goal:	
If no, why not:			

EMS — ELEMENT 5.0
APPENDIX 5.A: BIOSOLIDS 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 7% for a final solids concentration of 22% as a daily average.				
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)	• Environmental Performance • Regulatory Compliance • Improve Biosolids Management Practices
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**	
1. Develop Bid Specifications	Steven L. Nutter-Biosolids EMS Mgr.	September 12, 2017	Complete	
2. Award bid and obtain funding by City Council	Steven L. Nutter-Biosolids EMS Mgr.	August 7, 2018	Complete (August 2, 2018)	
3. Finish onsite rehab of one belt press	Steven L. Nutter-Biosolids EMS Mgr.	October 4, 2019	Complete (October 9, 2019)	
4. Start onsite rehab of second belt press	Steven L. Nutter-Biosolids EMS Mgr	October 7, 2019	Complete (October 8, 2019)	
5. Finish onsite rehab of second belt press	Steven L. Nutter-Biosolids EMS Mgr.	January 25, 2020	Complete (January 28, 2020)	
6. Start onsite rehab of third belt press	Steven L. Nutter-Biosolids EMS Mgr.	May 1st, 2020	Completed (January 27, 2020)	
7. Finish rehab of third	Steven L. Nutter-Biosolids EMS Mgr.	May 31, 2020	Completed (May 22, 2020)	
8. Start onsite rehab of fourth belt press	Steven L. Nutter-Biosolids EMS Mgr.	January 11, 2021	Not Complete	
9. Finish rehab of fourth belt press	Steven L. Nutter-Biosolids EMS Mgr.	April 30, 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:	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	
Centrifuge/Polymer Pilot Project				
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)	

ACTION PLAN: C-COMPLETED	RESPONSIBLE PARTY	MILESTONE COMPLETION DATE	STATUS	
Improve ability to identify concerns using the Water Department's social media accounts				
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)	• Improve Public Relations
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)	

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	

Notes/Comments:

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.
- **September –** 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.				