



ARLINGTON
RE-GEN

Solids Upgrade Program

Joint Facilities Advisory Commission

November 17, 2021

Agenda

- 01 Program Status**
- 02 Process**
- 03 Biogas Beneficial Use**
- 04 Site Plan Development**
- 05 Questions and Discussion**

Background

- Arlington County Water Pollution Control Plant
 - Initially constructed 1935-1936
 - Multiple expansions
 - 35 Acre Site
 - 40 MGD Design Capacity
 - Serves most of Arlington and parts of Alexandria, Fairfax, and Falls Church
- Our mission is to clean water in order to protect the public health, air quality, and the environment in Arlington County and the Chesapeake Bay watershed.



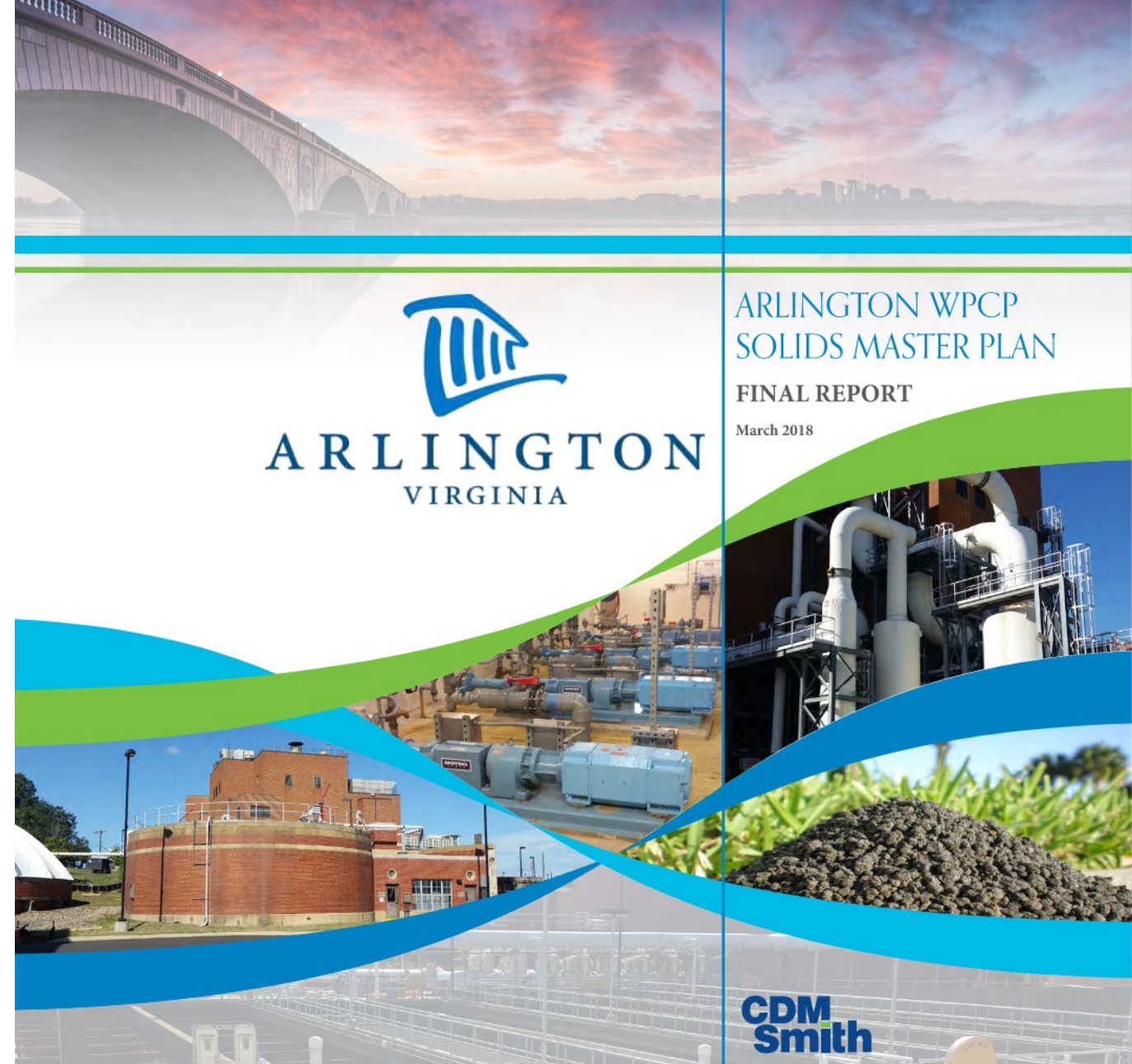
Background

- The Solids Upgrade Program is a comprehensive suite of upgrades to re-envision solids handling for the 21st century
- Creates opportunities for sustainability and recovery of resources such as renewable energy and a nutrient-rich soil amendment
- Replaces infrastructure while helping Arlington County meet energy and carbon reduction goals



Previous Work

- Development of the Solids Master Plan began in 2015 and was completed in 2018
- It included rigorous evaluation of multiple solids handling options
- Key input from a stakeholder group led to technology selection of thermal hydrolysis and anaerobic digestion



Benefits of Upgrades





01 Program Status

Mission

To create renewable energy and a soil-enhancing biosolids product using a safe and reliable transformation process.

Vision

To be a good neighbor within our community, a leader in efficiency in our industry, and a beacon of sustainability in Arlington County.

Purpose

To replace infrastructure in a manner that helps Arlington County meet its energy and carbon reduction goals.

Program Execution

“What”

- Data Analysis
- Condition Assessment
- Technology Review
- Process Evaluations
- Gas Utilization
- Air Emissions
- Site Development
- Facilities Plan

“How”

- Risk Analysis
- Project Packaging
- Delivery Evaluation
- Procurement of Delivery Teams

“Implementation”

- Detailed design
- Construction

“Future”

- Start-up and Commissioning
- Training
- Operations and maintenance needs
- End product marketing

Preliminary Schedule Overview

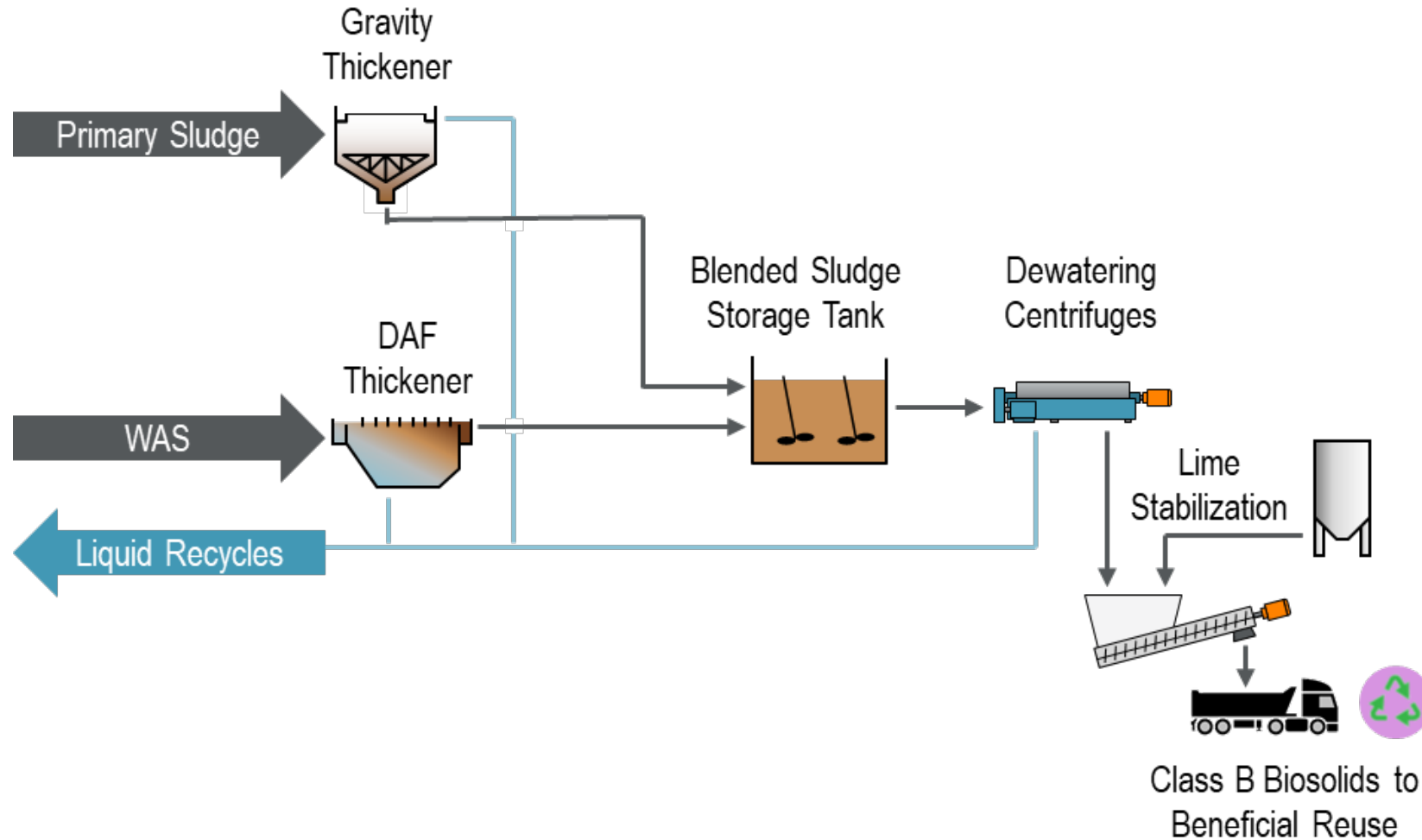
	2021		2022			2023				2024				2025				2026				2027				2028			
Facilities Plan	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Procurement	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Design – Site Work	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Construction – Site Work	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Design – Remaining	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Construction – Remaining	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Start-up	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	



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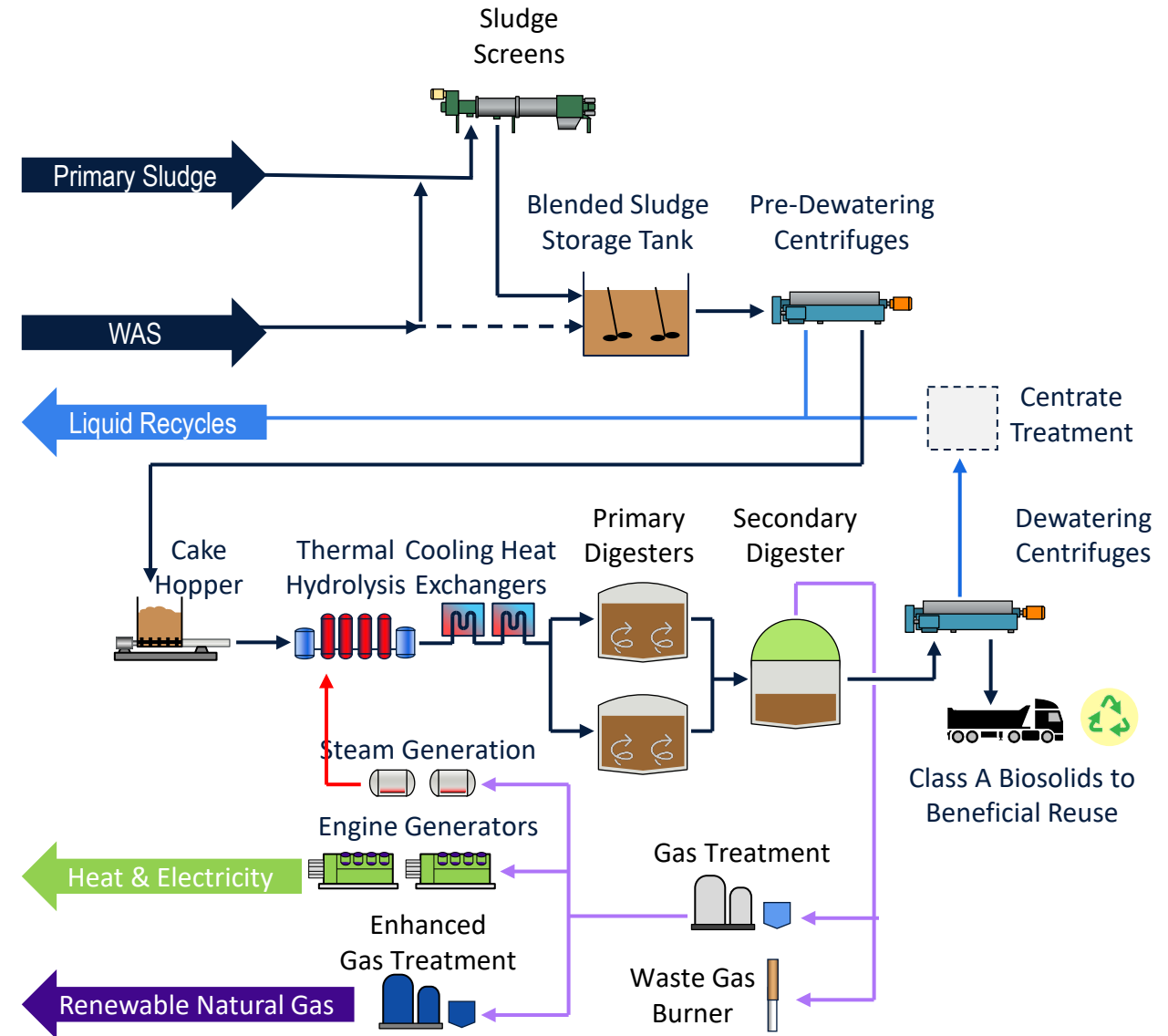
02 Process

A paradigm shift from...



To:

- Thermal hydrolysis
- Anaerobic digestion
- Class A biosolids
- Biogas utilization



Key Terms



Thermal Hydrolysis



Anaerobic Digestion



Class A Exceptional Quality Biosolids

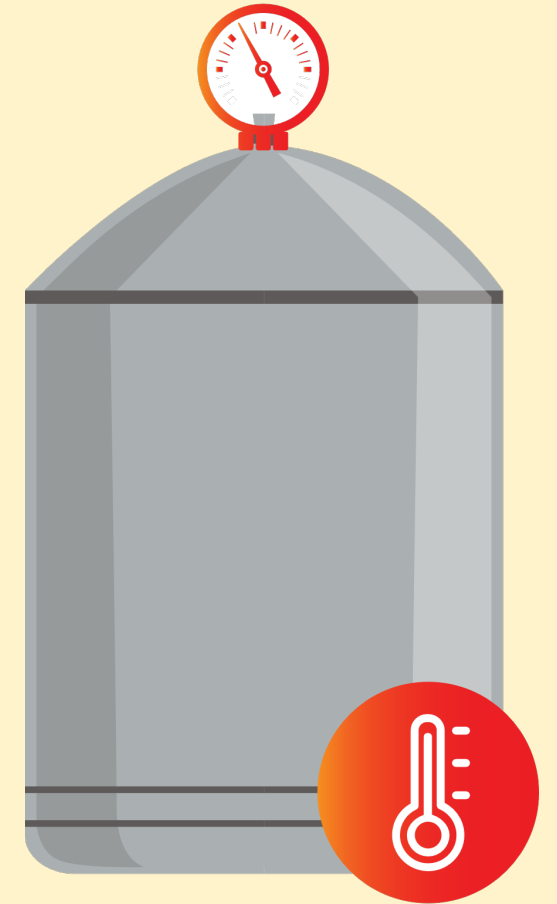


Biogas Utilization



What is Thermal Hydrolysis?

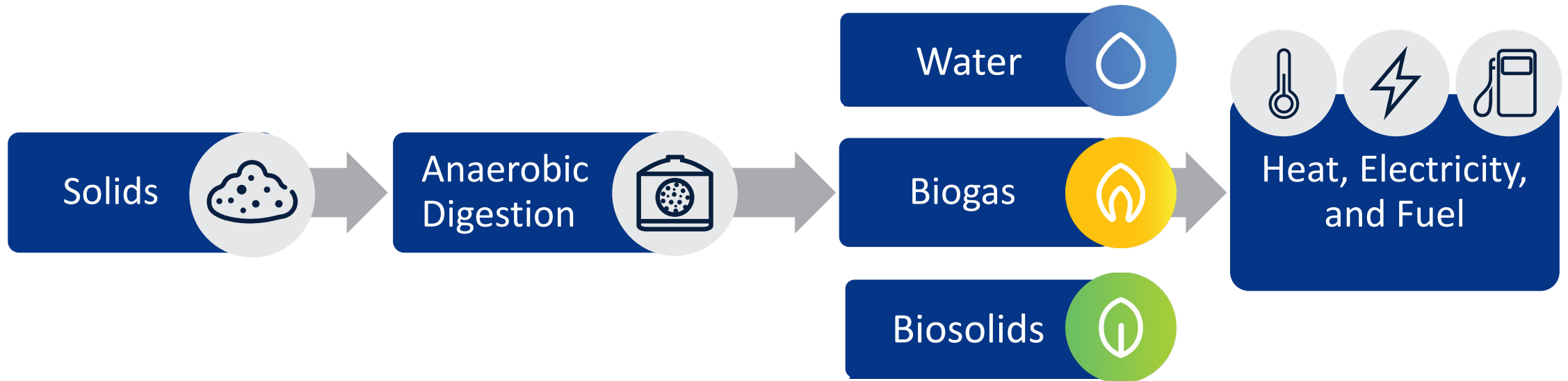
- A high-temperature process—similar to a pressure-cooker— that sterilizes residuals and makes them more efficient to break down
- The high-temperature process removes pathogens, resulting in a Class A Exceptional Quality biosolids product





What is Anaerobic Digestion?

- Process to break down biodegradable material to produce biogas, water and stabilized biosolids





What is Biogas Utilization?

- Biogas generated in the digesters is cleaned through a treatment process.
- The cleaned biogas can be used to fuel transportation vehicles or onsite for energy production



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What are Class A Exceptional Quality Biosolids?

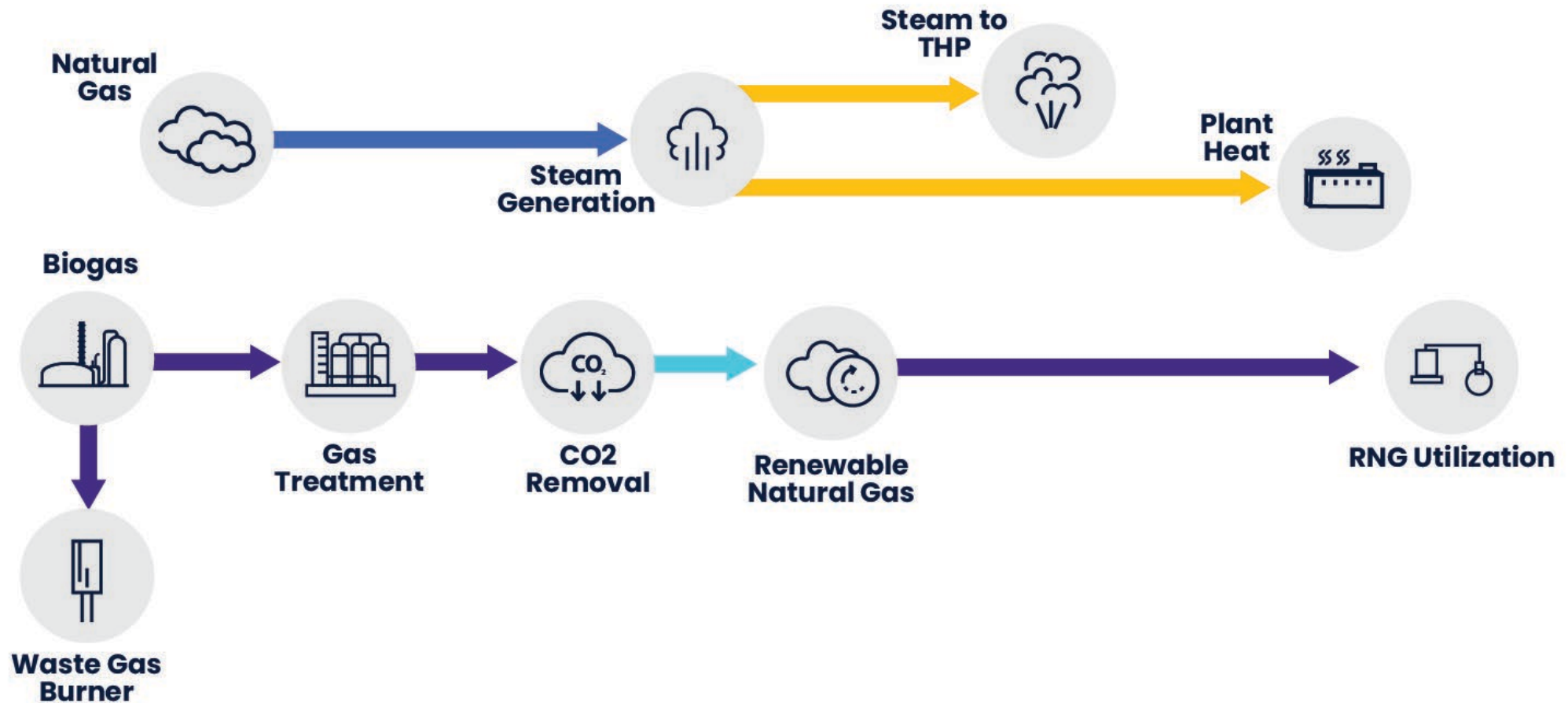
- Highly treated biosolids that do not have detectable levels of pathogens.
- Class A Exceptional Quality (EQ) biosolids are the final product regulated by the state that can be used in gardens, farms, lawns, etc., to enhance soil by slowly releasing nutrients can be used as fertilizer on areas such as lawns, parks, gardens, etc.



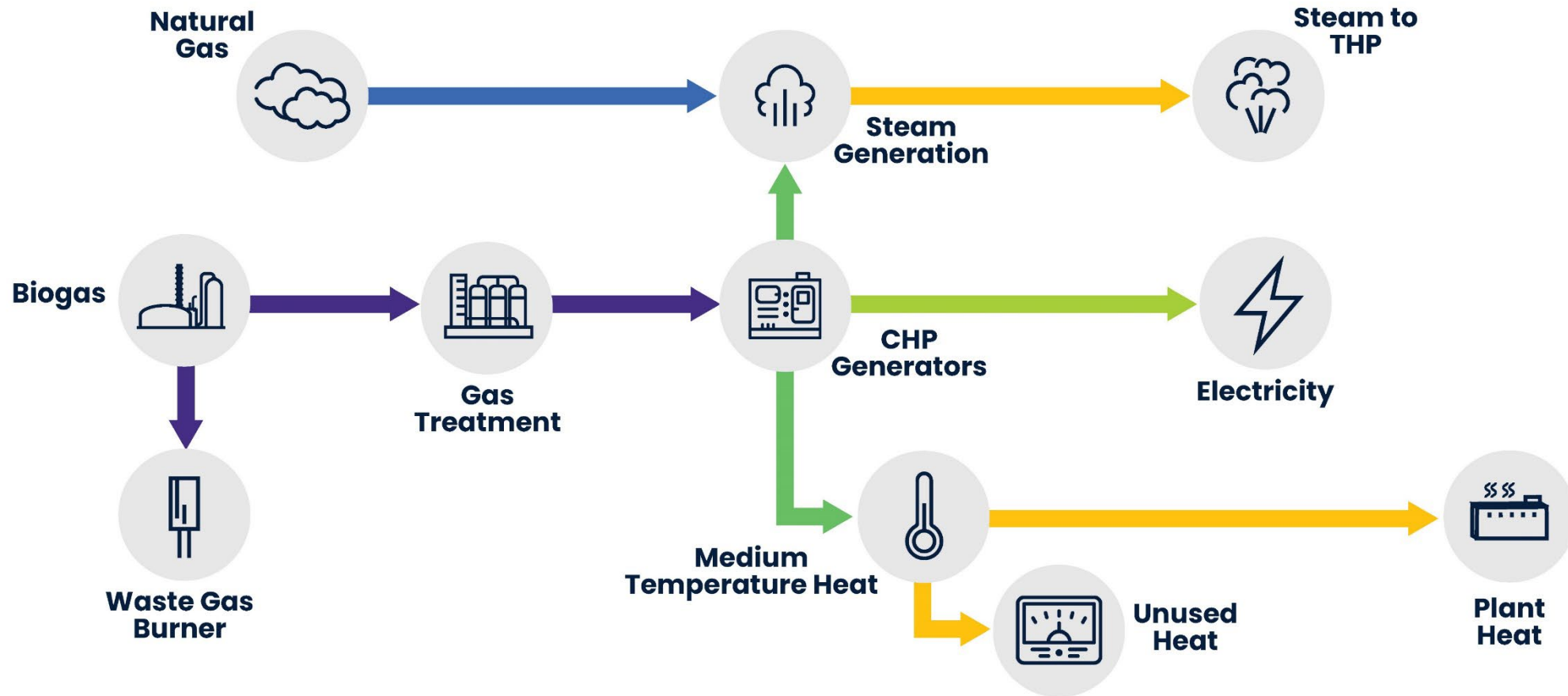


03 Biogas Beneficial Use

Biogas upgraded to Renewable Natural Gas



Biogas Used in Engines for Electricity and Heat





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04 Site Plan Development

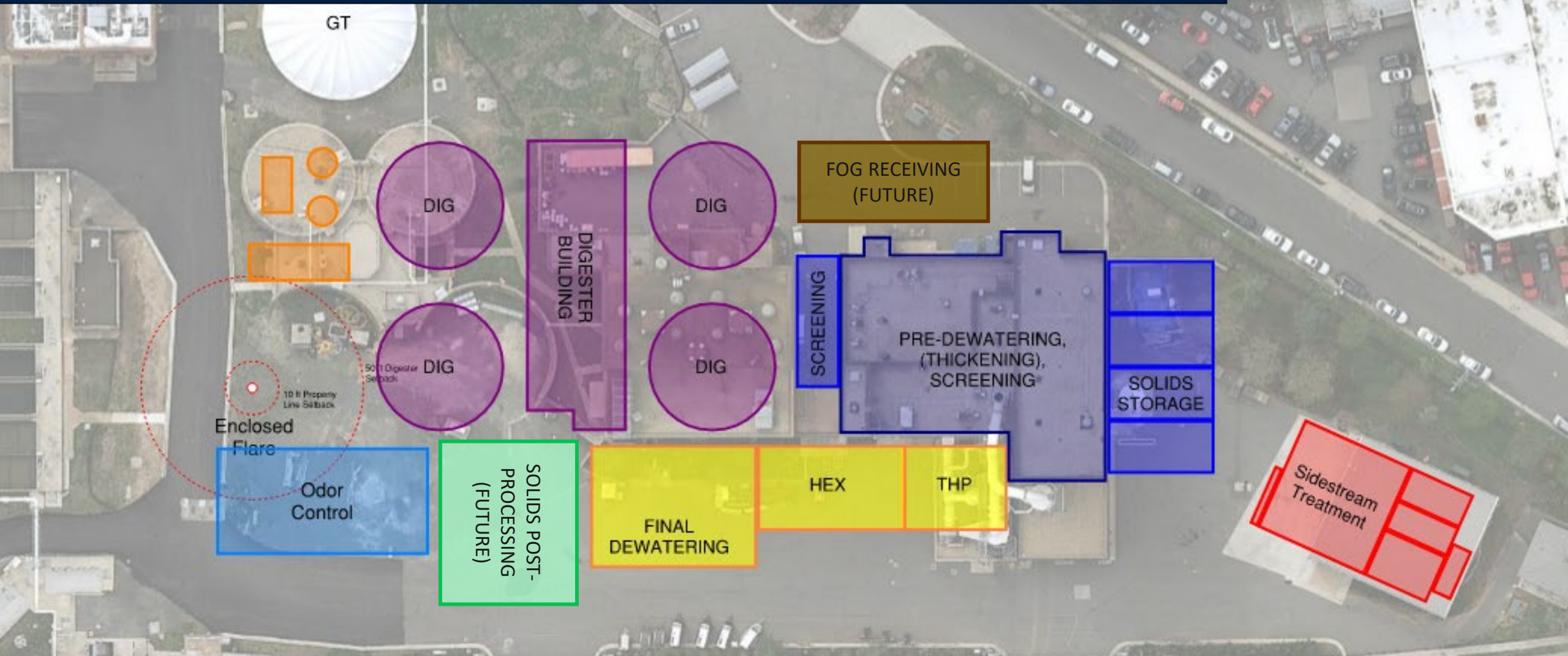
Evaluating Existing Facilities



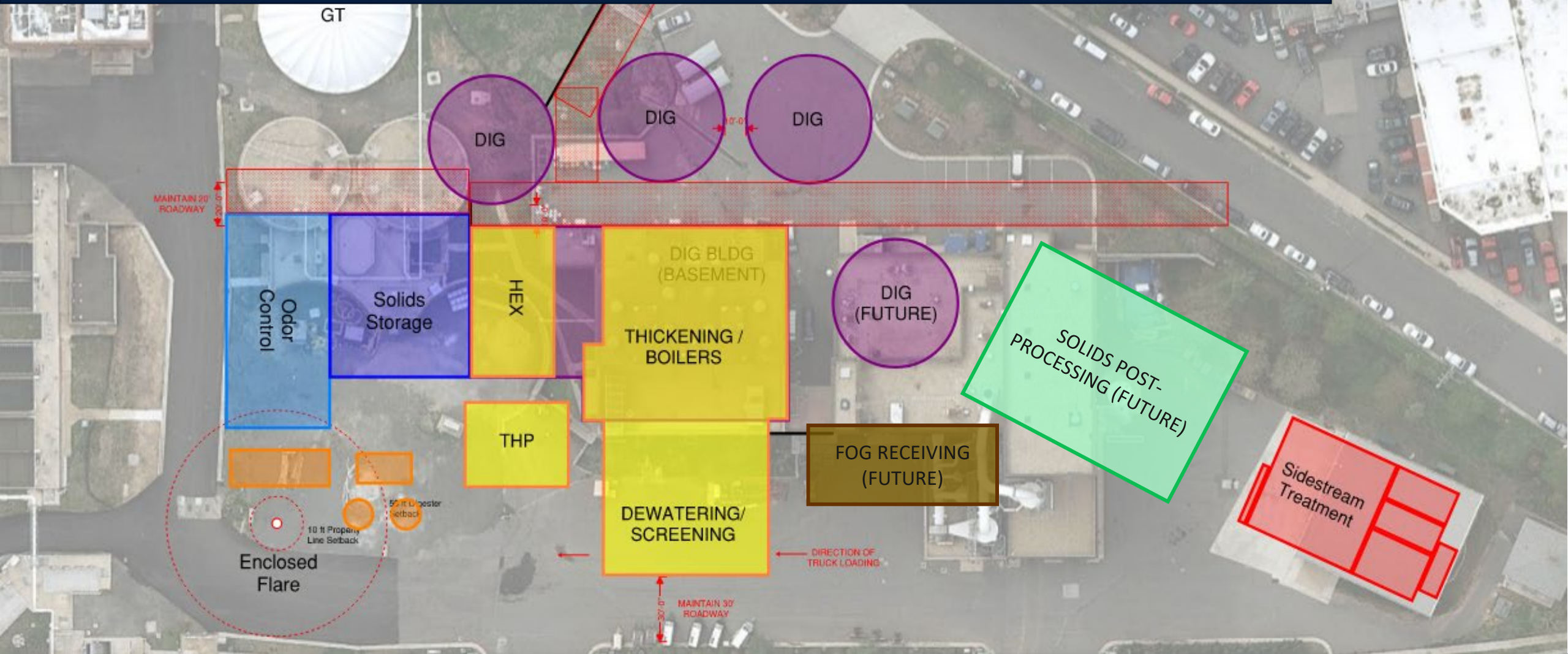
Evaluating Existing Facilities



Site Plan Options - Renovate Dewatering Building



Site Plan Options - Decommission Dewatering Building





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05 Questions and Discussion

Project Contact

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