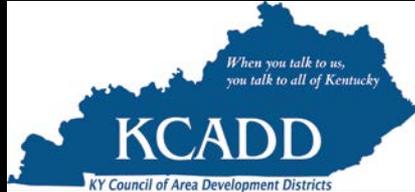


Case History - City of Bloomington

David Wrightsman



Introduction

Overview

- City of 69,000 population
- 20 Mgd wastewater facility
- City Had done two previous PC projects
- Preliminary engineering completed for project but never implemented
- Customer identified several additional needs as part of project
- RFP in May 2003
- Construction
 - Start Oct 2003
 - Complete Dec 2004



Procurement

- Concept Introduction February 2003
- Feasibility April, 2003
- Request for Proposals May 2003
- Negotiation and scope verification June 2003
- Utility Board Approval June 2003
- City Council Approval July 2003
- Contract Authorized August 2003

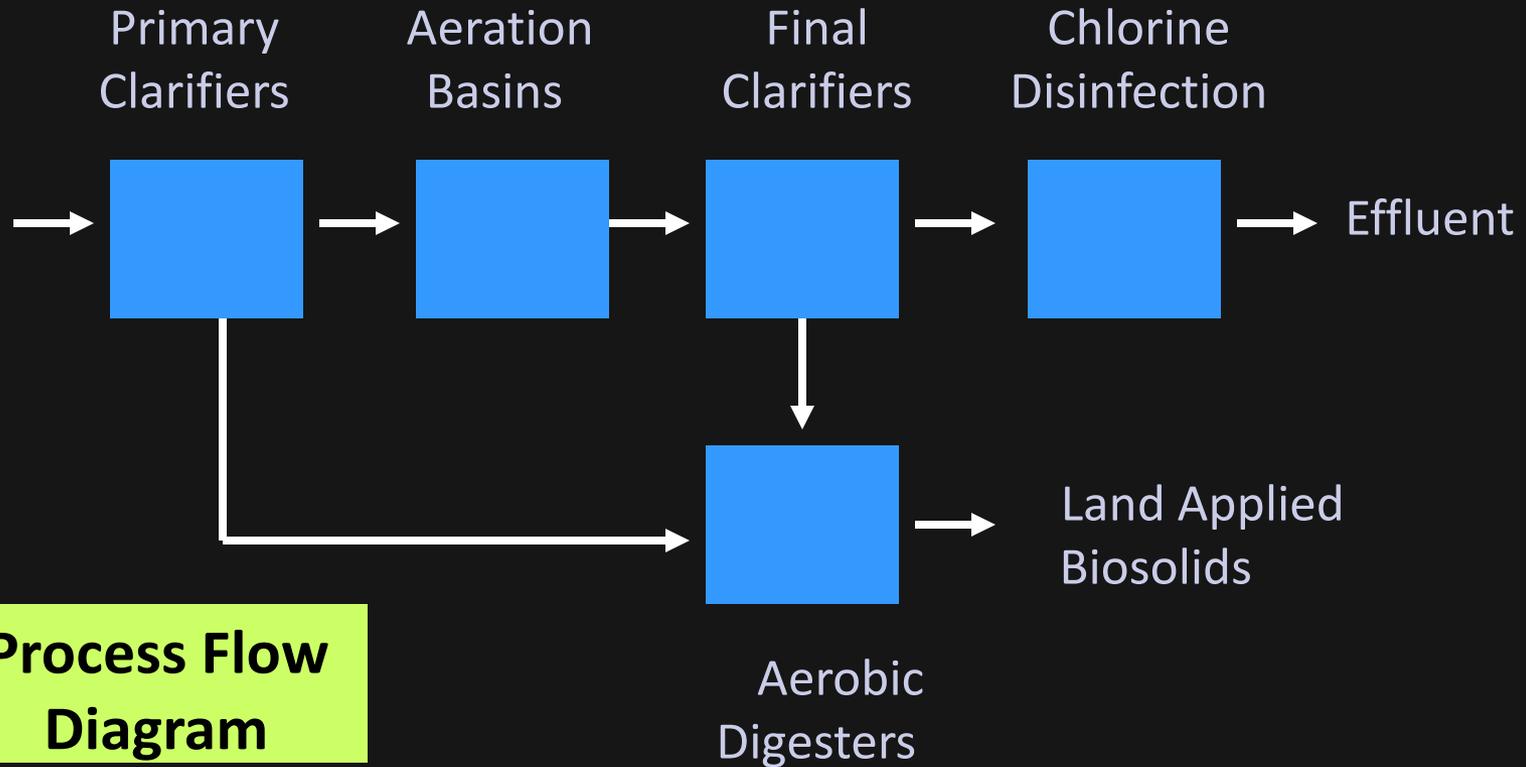


Project Team



Dillman Road Wastewater Facility

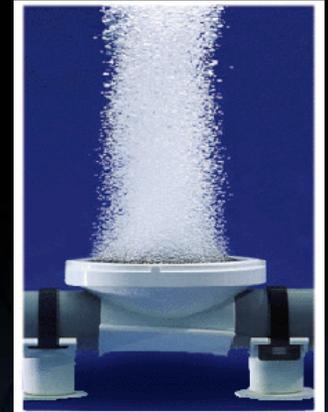
Conventional activated sludge



Scope of Work

Aeration

- Convert from coarse bubble to fine bubble diffusers in six aeration basins and two aerobic digesters
- 12,600 diffusers replaced
- Digester tank modifications to improve mixing



Scope of Work

Aeration

Note nearly
plugged aeration
piping



Scope of Work

Blower

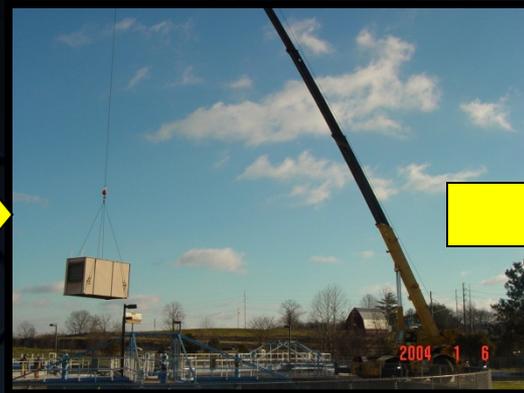
- Replace existing 400 hp multi-stage centrifugal with variable vane, variable flow Turblex Blower
- Reduced air requirements allowed for a new trim blower to optimize energy
- The other units remained for backup and baseload



Scope of Work

HVAC

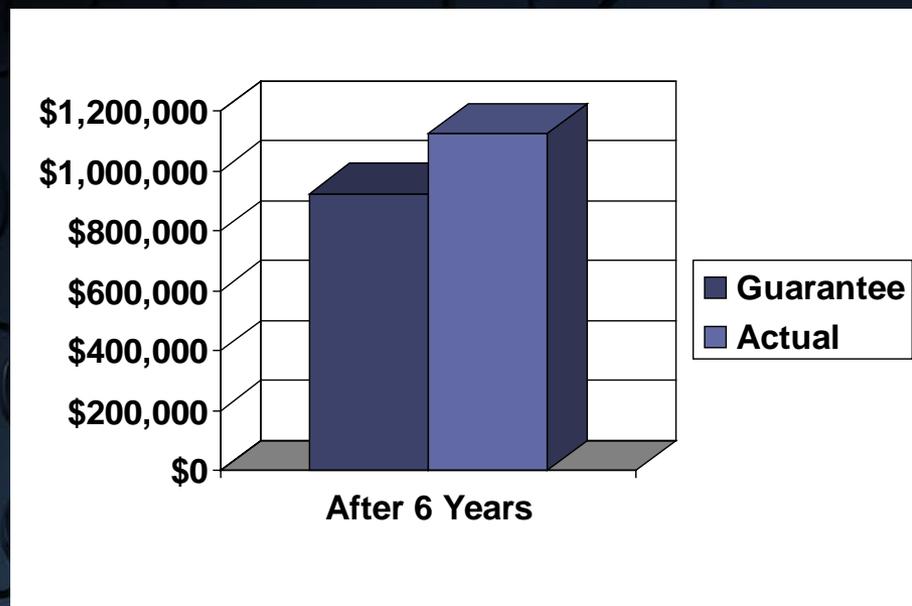
- HVAC Improvement – replace existing electric makeup air unit with gas fired unit



Financials

- Contract Price \$2,371,493
- Financed 10 years at 3.90% Interest
- 7.93 year simple payback
- Savings thru year 6
 - Guarantee = \$925,782
 - Actual = \$1,124,263

Refined previous project loans for additional \$39,600 in total savings.



Sustainability

- This Project Reduced the City of Bloomington's Carbon Footprint by
 - 13,413,163 kWh Over the Guaranteed Period to Date
 - 10,428 Carbon Monoxide Metric Tons
 - Greenhouse Gas Emissions from 1,910 Passenger Vehicles Annually
 - Carbon Monoxide Emissions from Electricity from 1,381 Homes for 1 Year



Why Do it?

- External funding accelerated project
- Single source accountability
- Performance guarantees
- Trusted delivery team
- No rate increases required



Do Different?

Issue

- Customer decided not to do dissolved oxygen control which would have improved performance
- Foaming issues during startup of digesters caused concern, but it settled down after three weeks
- Blower went down after operator turned off oil pump and began rotating backwards

Next Time

- More education / visit other sites where it's working
- Anticipate and warn
- Installed valve to prevent reverse rotation





Thank You
Questions?

