



# **City of Grand Island**

**Tuesday, January 29, 2013**

**Study Session**

## **Item -3**

### **Update on Wastewater Treatment Plant**

**Staff Contact: Terry Brown, Interim Public Works Director**

# **Council Agenda Memo**

**From:** Terry Brown, Manager of Engineering Services

**Meeting:** January 29, 2013

**Subject:** Wastewater Treatment Plant Update

**Item #'s:** 3

**Presenter(s):** Terry Brown, Interim Public Works Director

## **Background**

On February 14, 2012 City Council approved Resolution #2012-41 B, which adopted an internal cost efficiency improvement plan for the Wastewater Treatment Plant. This resolution also allowed for the creation of two (2) new positions, consisting of a Wastewater Treatment Plant Engineer and a Wastewater Operations Engineer.

## **Discussion**

A PowerPoint presentation is being shown tonight to show the progress of the internal cost efficiency improvement plan for the Wastewater Treatment Plant.

## **Conclusion**

This item is presented to the City Council in a Study Session to allow for any questions to be answered and to create a greater understanding of the issue at hand.

## Wastewater Update



## Resolution 2012-41B approved February 14, 2012

- Adopted an Internal Cost Efficiency Improvement Plan
- Created Two Positions:
  - Wastewater Plant Engineer and Operations Engineer
- Identify Asset Management Software and Services
- Identify additional Monitoring Locations and Devices
- Asset Management & Monitoring/Automation study

## Goal

- 🌐 Provide the Rate Payers with the most efficient cost effective wastewater treatment possible.

## Opportunities for Improvement

Technical Skills

Asset Management

Process Review / Monitoring and Automation

Staff Utilization

## Technical Skills

Acquire expertise:

☞ Wastewater Plant Engineer – Marvin Strong PE

☞ Wastewater Operations Engineer – Jue Zhao PhD PE

☞ Lab Technician – Joseph Shanle



## Technical Training

- Wastewater Treatment Plant Operations Training will be provided to all Wastewater Personnel in early April 2013.
- They will receive credit from the NDEQ for the training
- All licensed wastewater treatment plant operators must obtain continuing education credits to maintain their licenses.



## Asset Management Training

- 🌊 Fred Tustin and Scott Cameron attended NASSCO training last year to help develop an Asset Management process for the Sanitary Sewer Collection System
- 🌊 GIS will be an integral part of that Asset Management process

## Wastewater Plant process study

- Jue Zhao, PhD is using Bio-Win to model the Wastewater Treatment Plant's Performance. This is the same software Veolia planed to use.
- Jue Zhao, PhD made one process change that reduced electrical uses and is looking to make several more that will reduce electrical power even more .

## Automation/Monitoring

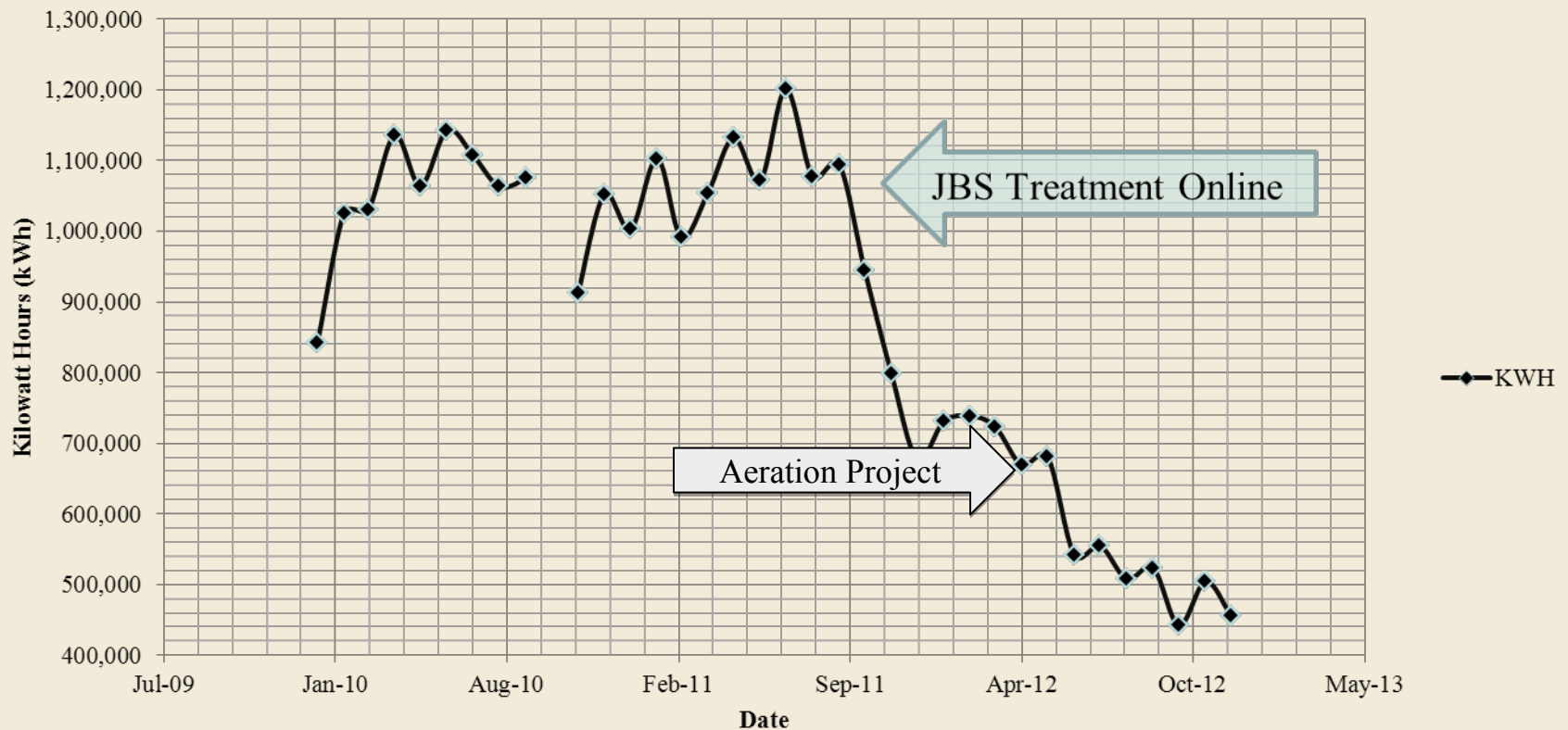
- SCADA
- Flow Monitoring
- Collection System Corrosion Monitoring
- Rainfall - Inflow/Infiltration Relationship
- Process Monitoring
- Training

## Wastewater Plant Efficiency

- Electrical usage at the wastewater treatment plant has been reduced by 40% to 50% over the last three years
- JBS reduced its' loadings to the Wastewater Treatment Plant
- Treatment Plant Aeration Project
- Drought
- Internal recycle

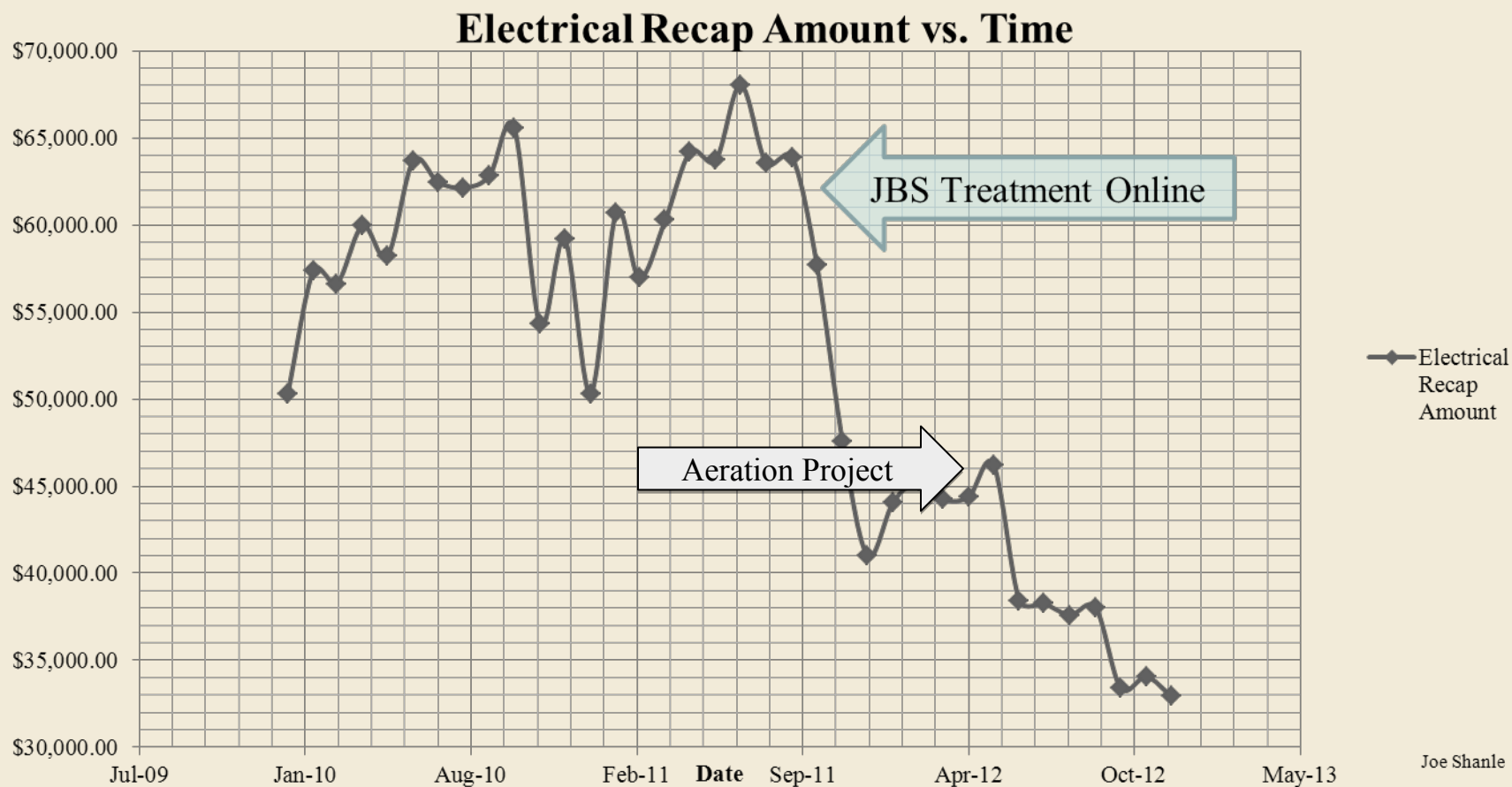
## WWTP Electrical Three Year Usage

### Kilowatt Hours consumed Monthly



Joe Shanle-1/21/2013

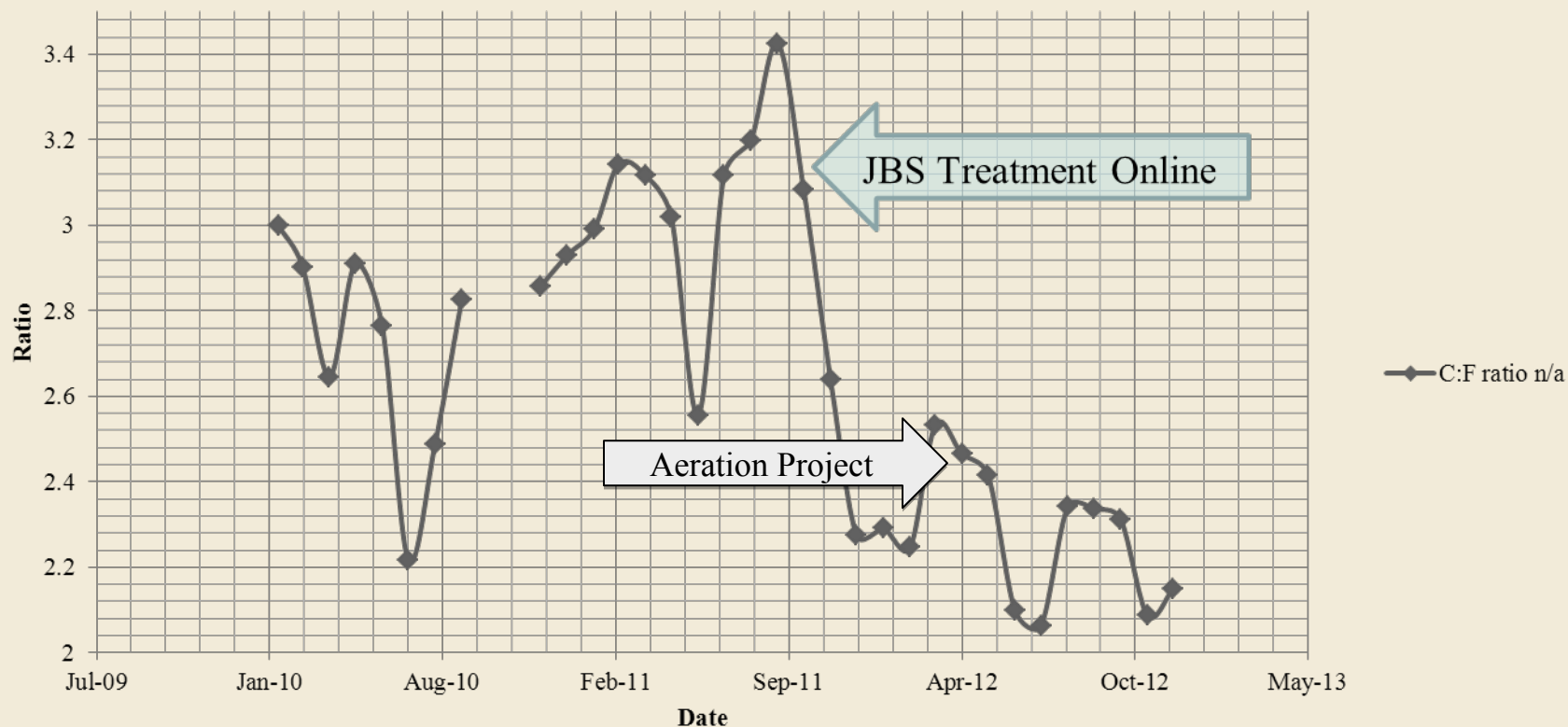
## WWTP Electrical Costs



Joe Shanle

# WWTP Electrical Efficiency

(Power Consumption/Unit Flow) vs. Time



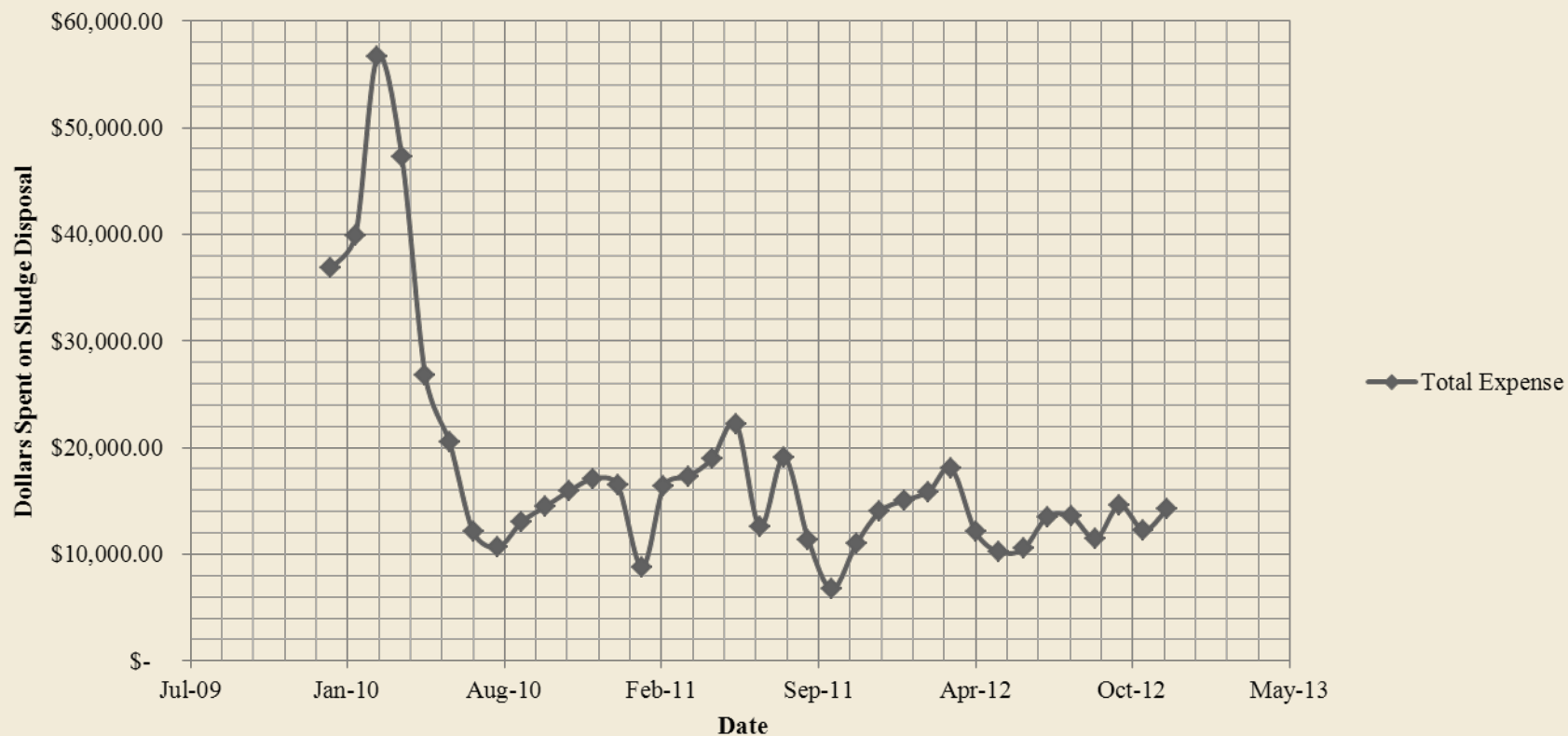
Joe Shanle-1/21/2013



## Wastewater Plant Process Study

- 🌊 Sludge Disposal Costs have been substantially reduced by JBS' reduction in loadings to the wastewater treatment plant

### Dollars Spent on Sludge Disposal 2010-2012



## Environmental Compliance

- Conducted Laboratory Audit and modified the laboratory testing to bring it into compliance with 40 CFR 136 -----. Additional equipment was purchased to bring testing into compliance.
- We visited the wastewater laboratory in Lincoln
- Joe Shanle visited a commercial wastewater laboratory in Omaha
- We are on a par with any wastewater laboratory in the State of Nebraska

## Environmental Compliance

- Regulatory Enforcement Issues
- USEPA Administrative Order for failure to submit 503 Sludge Reports – Resolved; 2012 reports have already been submitted
- USEPA RCRA Notice of Violation for failure to assess Hazardous Materials – Resolved
- NDEQ Notice of Violation for failure to submit SWPPP NOI - Resolved

## Environmental Compliance

- NPDES Permit
- Expires September 30, 2013. No changes are expected during this renewal cycle. However Phosphorus and or Nitrate Limits may be added during the next cycle.

## Environmental Compliance

- Initiated meetings with JBS to discuss wastewater issues of mutual interest to JBS and the City of Grand Island
- JBS reduced its' wastewater treatment charges by \$1,000,000 per year by installing pre-treatment facilities
- JBS is working on reducing its' wastewater charges further by increasing their ability to remove Nitrates.
- JBS NDEQ wastewater pretreatment permit

## Environmental Compliance

🌊 Lab Technician ➡ Regulatory Compliance Position

🌊 Environmental

🌊 Laboratory

🌊 Safety

🌊 Security



## Staff Utilization

### Proposed Positions

- Regulatory Compliance Position
- Lab Tech/Clerical/Data Management Position
- Project Manager/Construction Manager

### Open Positions

- Maintenance Supervisor
- Maintenance Mechanic
- Equipment Operator

## North Interceptor Repair Update

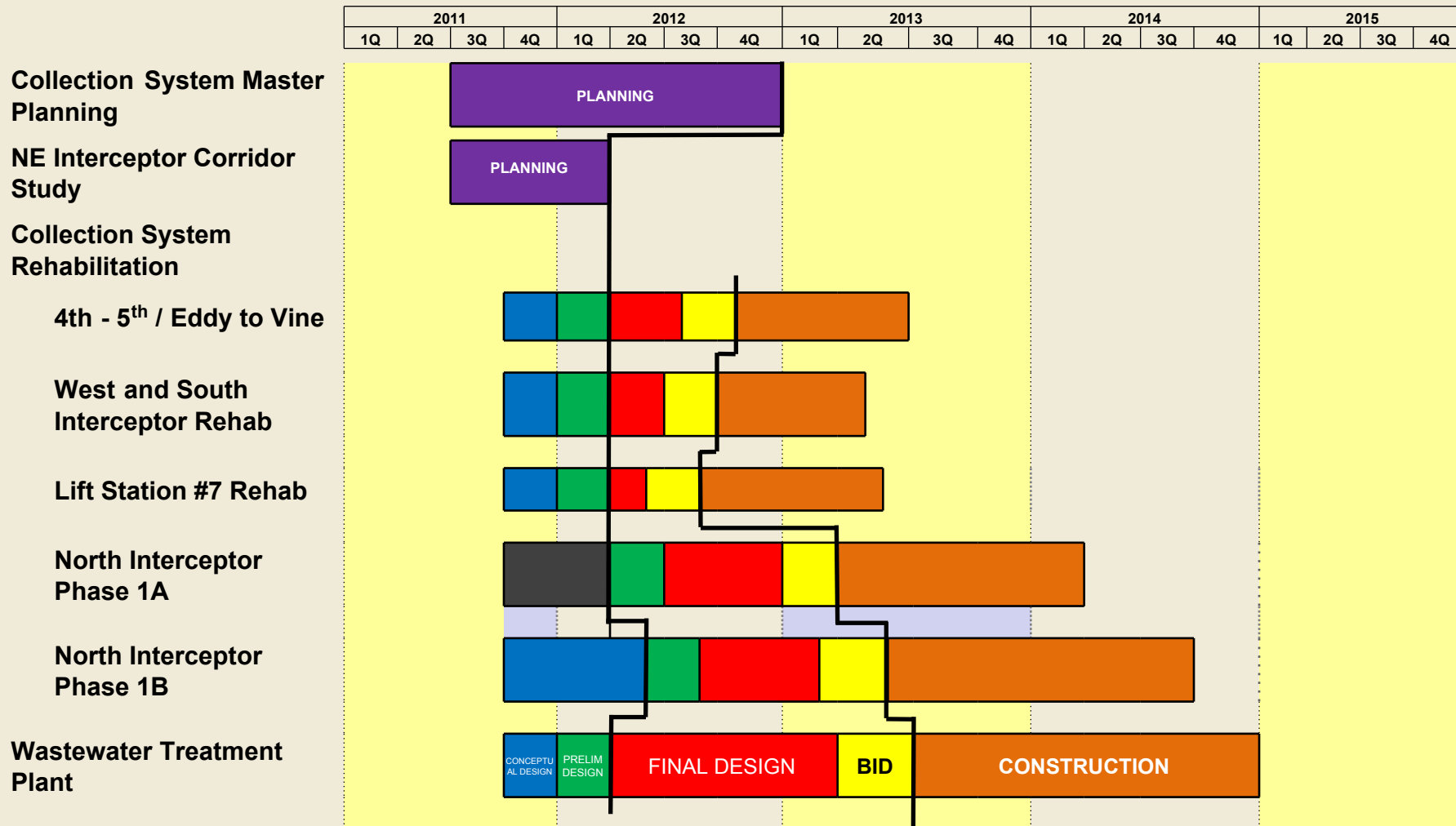




## North Interceptor Repair Update



# OVERALL PROGRAM SCHEDULE



## Rate Study

- 🌊 The current rate structure is based on capital expenditures of \$44 million based on the May 2010 comprehensive plan. Additional funding will be needed to complete the wastewater work recommended to the council.
- 🌊 A rate increase(s) will be needed to cover the cost of the additional capital expenditures.
- 🌊 A request will be made to council next month to authorize Black and Veatch to update our rate study to fund the recommended rehabilitation projects.

# Questions