

Memorandum

To: Programs, Projects, and Operations Subcommittee:

Subject: City of Fort Calhoun – Water Quality Grant

Date: October 1, 2007

By: Gerry Bowen

The District received a request (see attached) from the City of Fort Calhoun (2004 estimated population – 908) for a water quality grant to address wastewater treatment needs for their community. Fort Calhoun's existing wastewater treatment plant is under restriction by the Department of Environmental Quality with overflows currently flowing down a county road ditch, and eventually to the Boyer Chute National Wildlife Refuge (see attached refuge map).

The City compared the option to installing a new wastewater treatment plant with the option of transporting the wastewater to the City of Blair for treatment. The City selected the latter as being the most economical solution for the next 40 years. The City of Blair has agreed to this solution and plans are being prepared to install the pump and transmission line (see attached map).

The regional option with the City of Blair has a higher initial cost, but a lower annual cost when a 40 year life is used in the analysis. The regional option carries a higher initial construction cost (\$323,000) than building a new plant, but is less expensive when the costs are amortized over a period of 40 years (\$283,000 vs. \$210,000).

The City has requested a grant of \$300,000 from the District to offset a portion of the costs to regionalize their wastewater treatment needs. The amount requested is similar to the grants provided to the Villages of Kennard and Arlington, based on population

- a. Kennard population – 389; \$250,000 water quality grant
- b. Arlington Population – 1202; \$350,000 water quality grant

Management supports this regionalization concept, as it has with Kennard and Arlington and recommends approval for the following additional reasons:

1. Removes an existing plant from the Missouri River floodplain.
 2. Improve water quality by eliminating a point source of pollution from the county road ditch and protecting a national wildlife refuge.
 3. Provides a long term (probably permanent) wastewater solution to the citizens of Fort Calhoun, and the District.
- **It is recommended that the City of Fort Calhoun be awarded a \$300,000 grant (FY 09 funds) for construction of a regional wastewater line to the City of Blair, and that the General Manager is authorized to execute an Interlocal Cooperation Act agreement, approved as to form by District Legal Counsel, providing for said grant.**

CITY OF FORT CALHOUN
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September 11, 2007

Mr. Jim Thompson, Chairman
Papio-Missouri River NRD Board of Directors
8901 South 154th Street
Omaha NE 68138

SEP 13 2007

Dear Mr. Thompson:

I would like to make you and the Board of Directors aware of a major project being undertaken by the City of Fort Calhoun. The City needs to upgrade its wastewater treatment facility to meet new treatment standards and to serve the projected growth of the community.

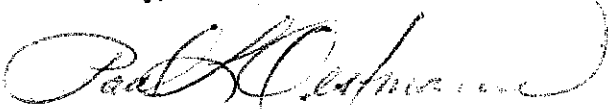
The City has completed a Wastewater Treatment Facility Plan, which includes the viable option of conveying Fort Calhoun's wastewater to the City of Blair for treatment. The City of Blair is already a regional provider of wastewater services and is willing to provide treatment service to the City of Fort Calhoun.

The conveyance to Blair option or regional approach provides a permanent solution to Fort Calhoun Wastewater Treatment needs. The majority of the conveyance system has a life expectancy in excess of 40-year period, which is key to making the project viable from a users cost perspective.

In June of this year, Fort Calhoun submitted a pre application for federal assistance to USDA Rural Development and has been determined eligible for USDA/Rural Utilities Services (RUS) water/wastewater loan program. It is the City's intent to pursue a 40-year loan through USDA for final approval.

We are requesting the NRD's assistance by supporting the regional approach to wastewater treatment with a water quality for grant \$300,000.00. We believe that conveying our wastewater to Blair is in the best interest of our community and the water quality in the area. We request the opportunity to present our request to the Board of Director's at the earliest convenience. Please feel free to contact me anytime at (402) 457-1303 or cell 306-4382.

Sincerely,



Paul Oestmann, Mayor
City of Fort Calhoun, NE

Cc: Gerry Bowen, Natural Resources Planner
John Winkler, General Manager
Marlin Petermann, Assistant General Manager

City of Fort Calhoun Nebraska
Wastewater Treatment Facility Plan Summary
Project 03453.047
September 10, 2007

Fort Calhoun operates a 26 year old mechanical wastewater treatment plant that has reached its design limits. During the past year the average daily hydraulic loading has exceeded the plants design capacity. The present plant cannot meet the future needs of Fort Calhoun.

A 40 year study planning period was used due to the large planning area, rapid and continuous population growth, long life of system components and Fort Calhoun's desire to develop a long term solution for wastewater treatment.

Two categories of treatment options where considered as follows:

1. Constructing a new or expanded treatment facility
 - a. Wetlands Treatment System
 - b. Expand and Renovate Existing Mechanical Plant
2. Convey sewage to a regional treatment provider.
 - a. Conveyance to Omaha
 - b. Conveyance to Blair

After preliminary evaluation options 1.b and 2.b were considered in more detail.

Option 1.b estimate of cost for the initial improvements

-	Grit removal facility	
-	Refurbishment of pumping station	
-	New 150,000 gpd Oxidation Ditch	
-	New finial clarifier	
-	New sludge facility	
-	Refurbish existing treatment components	
-	Replace standby generator	
-	New lab, water supply and truck	
		\$2,917,000.00

At year 20 of a 40 year design period.

-	Replace original treatment components	
-	Refurbish new treatment components	
-	Upgrade pumping station	
-	Present worth of future expenditures	\$1,888,670.00
	Total present worth costs	\$4,805,670.00

Option 2.b estimate of cost for initial improvements

-	Renovate existing pump station	
-	12" force main to Blair	
-	Delivery station with odor reduction	
-	Replace standby generator	
-	R.O.W./Easements	
		\$2,801,000.00*

At year 20 of 40 year design period

-	Replace pumps and motors	
-	Refurbish valves	
-	Present worth of future expenditures	\$ 142,850.00
	Total Present worth costs	\$2,943,850.00

Operation and Maintenance Costs Comparison

Option 1.b	Present Worth Costs	\$1,733,625.00
Option 2.b	Present Worth Costs	\$1,911,600.00

*Current cost estimate shows the initial cost to construct the Conveyance to Blair to be approximately \$3,240,000, (\$323,000 more than the plant expansion).

COST ANALYSIS OF ALTERNATIVE

Alternative	Present Worth Cost	Equivalent Annual Cost
Option 1.b Oxidation Ditch Expansion		
Capital Cost	\$4,805,670.00	
O & M Costs	\$1,733,625.00	
TOTAL	\$6,539,295.00	\$282,890.00
Option 2.b Conveyance to Blair		
Capital Cost	\$2,943,850.00	
O & M Costs	\$1,911,600.00	
TOTAL	\$4,855,450.00	\$210,047.00

Based on a 40 year cost analysis comparison the lowest cost alternative is the conveyance to Blair for treatment.

REVIEW

The propose improvements consists of modifying the lift station at the wastewater treatment plant, approximately 10 miles of 12" force main and a delivery station at the point of connection to Blair's sanitary sewer system. The project being proposed eliminates Fort Calhoun requirement to build/upgrade and operate a wastewater treatment facility. It eliminates the City effluent discharge to the Turkey Creek Watershed and the required NPDES Permit. It provides a long term (40+ years) solution to the City's wastewater treatment infrastructure needs at the lowest cost. Enclosed is a map that depicts the proposed project's improvements and area of potential effect for all construction activities.



Figure 1: Proposed Alignment of Conveyance Force Main from Ft Calhoun to Blair

— 12" DIA Force Main

**Fort Calhoun Sewer Conveyance Line
Topographic Map**

September 7, 2007



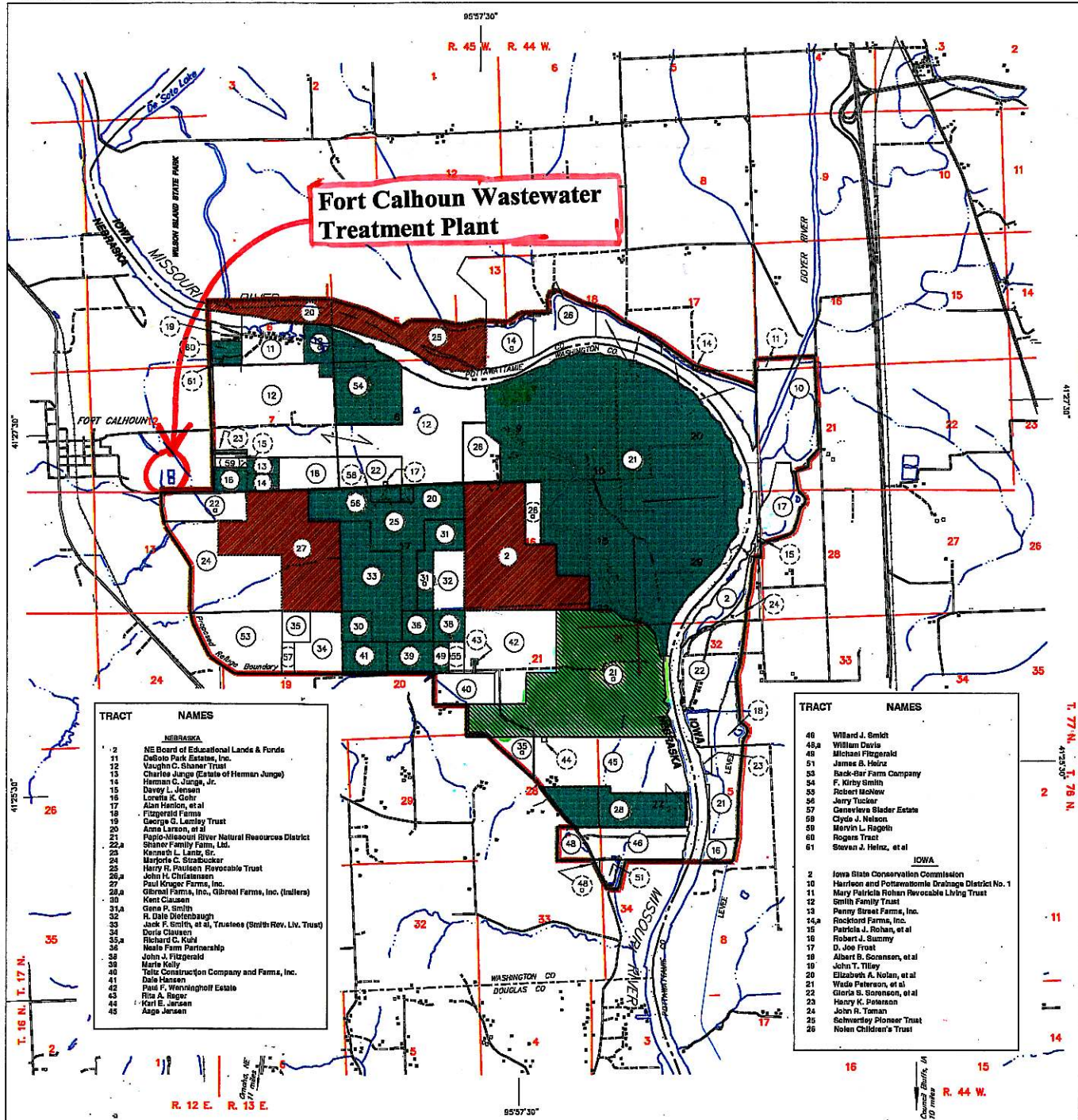
U.S. Fish & Wildlife Service

BOYER CHUTE
National Wildlife Refuge
Washington County, Nebraska
Pottawattamie County, Iowa

ACQUISITION STATUS - FY2003

UNITED STATES
DEPARTMENT OF THE INTERIOR

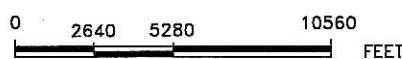
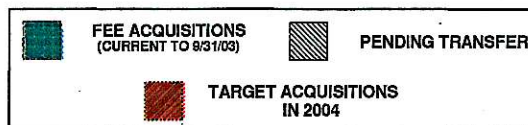
UNITED STATES
FISH & WILDLIFE SERVICE



COMPILED BY THE USFWS
DIVISION OF REALTY
DIVISION OF REFUGE PLANNING
FROM SURVEYS BY THE BLM, USGS, & USFWS

UTM NAD27 - ZONE14
NE COORDINATE SYSTEM -- SOUTH ZONE

DENVER, COLORADO OCTOBER 2003



NORTH

6R NE 1284



APPROXIMATE SCALE IN FEET



NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
**FORT CALHOUN,
NEBRASKA**
WASHINGTON COUNTY

(ONLY PANEL PRINTED)

COMMUNITY - PANEL NUMBER
310368 0005 B

MAP REVISED:
MAY 16, 1995



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT Version 1.0. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. Further information about National Flood Insurance Program flood hazard maps is available at www.fema.gov/nit/tsd.

Print Date: 10/12/2007 (printed at scale and type A)

