

MEMORANDUM

TO: Programs, Projects, and Operations Subcommittee

FROM: Ian Ghanavati, Water Resources Engineer

SUBJECT: Renewal of USGS Maintenance Agreement for Papio Floodwarning System Gages

DATE: November 7, 2023

In 1993, the District worked with the US Army Corps of Engineers (USACE) to install a flood warning system for the Papillion Creek Watershed. The system was upgraded in 2012 and consists of 22 gage stations. 4 stations report rain data, 8 report rain and stream stage data and the remaining 10 stations report rain, stream stage, and discharge data. The attached map shows the location of the gages within the Papillion Creek Watershed. The data is reported real time and is available to the public through the National Weather Service (NWS) and USGS web sites. The address of the NWS website is <http://water.weather.gov/ahps2/index.php?wfo=oax>. An agreement is in place with Douglas County, Sarpy County, Washington County and the City of Omaha to share the cost of the system.

The joint funding agreement for consideration is an annual renewal of the maintenance contract with the USGS for 2024 in the total amount of \$174,230. The USGS will cost share \$16,875 through their Cooperative Matching Funds and \$19,905 through the Federal Priority Streamgages Program. The District cost share totals \$137,450 for operation and maintenance of the gages. In comparison, in 2023, the District contribution was \$131,640 for gage operation and maintenance. Table 1 of the agreement is attached and provides a cost breakdown as well as the gage type and data collected for each site.

The quality data provided by USGS is valuable to NWS to improve forecasting and issuance of flood warnings in the Papio watershed and to the District for operation and monitoring of the Papio flood control systems. Each year the USGS works to record high flows and provide the District and its partners improved data for rating curves (flow vs. stage) at each site. The NWS, USGS and the District continue to discuss upgrades to the system to better serve the agencies using the data as well as working to make the information more readily available to the public.

Management recommends that the Subcommittee recommend to the Board that the General Manager be authorized to execute the proposed Joint Funding Agreement with the USGS in the amount of \$137,450 in District funds for the operation of the District's floodwarning system for 2024, subject to such other terms and conditions as the General Manager deems necessary and District Legal Counsel approves as to form.

PAPILLION CREEK WATERSHED

Douglas, Sarpy, and Washington Counties, Nebraska

THE FLOOD CONTROL PLAN

Legend

 FLOOD WARNING GAGE

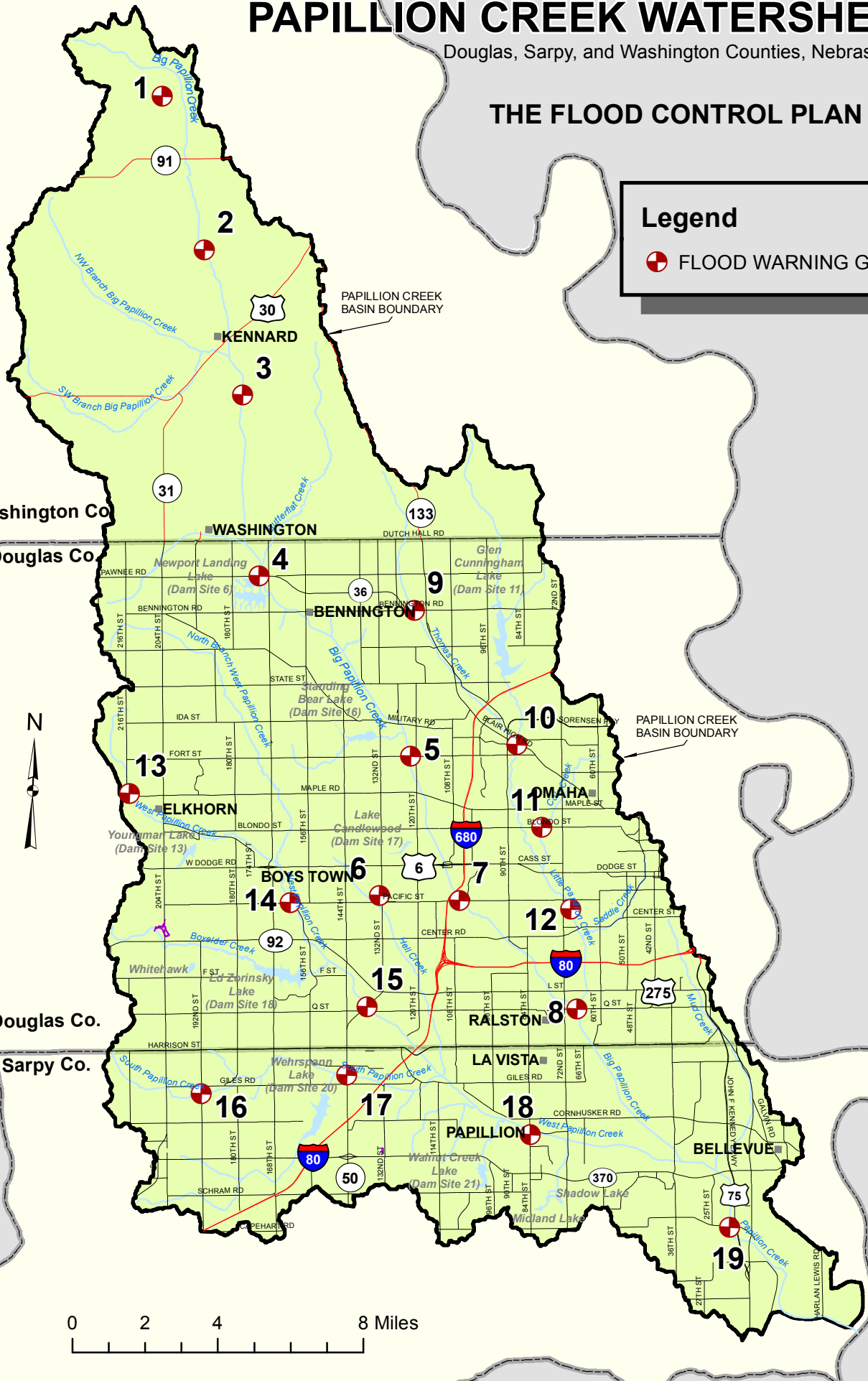


Table 1. Summary of proposed funding for operation of stream gages and rain stations supported by the Papio-Missouri River Natural Resources District and other partners for period October 1, 2023 -- September 30, 2024.

[CR, continuous-record; SR, seasonal-record (Mar. 1-Oct. 31); CMF, USGS, Cooperative matching funds; PMR NRD, Papio-Missouri River Natural Resources District; FPS, Federal Priority Streamgages Program; USGS, U.S. Geological Survey; Q, Discharge; ST, Stage; PR, Rain]

| USGS Station number | PMR NRD Station Number | Station name | | | | | Gage type(s) | Data to be published | Footnote |
|------------------------|------------------------|---|----------|-----------|----------|-----------|---|--|----------|
| | | | USGS CMF | PMR NRD | USGS FPS | Total | | | |
| 06601000 | | Omaha Creek at Homer | \$0 | \$9,775 | \$6,390 | \$16,165 | CR - 12 month: Q, ST | Annual daily Q and ST for Oct. 1-Sept. 30. | a |
| 413403096135001 | 1 | Rain gage near Orum | \$270 | \$1,460 | | \$1,730 | SR - 8 month (Mar. 1 - Oct. 31): PR | Rain data collected, not published. | |
| 06610705 | 2 | Big Papillion Creek near Blair | \$705 | \$4,045 | | \$4,750 | SR - 8 month (Mar. 1 - Oct. 31): ST, PR | ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610710 | 3 | Big Papillion Creek near Kennard | \$705 | \$4,045 | | \$4,750 | SR - 8 month (Mar. 1 - Oct. 31): ST, PR | ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610720 | 4 | Big Papillion Creek near Bennington | \$1,705 | \$9,840 | | \$11,545 | SR - 8 month (Mar. 1 - Oct. 31): Q, ST, PR | Daily Q and ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610732 | 5 | Big Papillion Creek at Fort Street at Omaha | \$0 | \$6,895 | \$4,650 | \$11,545 | SR - 8 month (Mar. 1 - Oct. 31): Q, ST, PR | Daily Q and ST for Mar. 1 - Oct. 31. Rain data collected, not published. | a |
| 411504096071601 | 6 | Rain Gage at Boys Town at Omaha | \$270 | \$1,460 | | \$1,730 | SR - 8 month (Mar. 1 - Oct. 31): PR | Rain data collected, not published. | |
| 06610740 | 7 | Big Papillion Creek at Pacific St at Omaha | \$705 | \$4,045 | | \$4,750 | SR - 8 month (Mar. 1 - Oct. 31): ST, PR | ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610742 | 9 | Thomas Creek near Bennington | \$705 | \$4,045 | | \$4,750 | SR - 8 month (Mar. 1 - Oct. 31): ST, PR | ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610750 | 10 | Little Papillion Creek near Irvington | \$0 | \$9,080 | \$2,465 | \$11,545 | SR - 8 month (Mar. 1 - Oct. 31): Q, ST, PR | Daily Q and ST for Mar. 1 - Oct. 31. Rain data collected, not published. | a |
| 06610760 | 11 | Cole Creek at Blondo Street at Omaha | \$705 | \$4,045 | | \$4,750 | SR - 8 month (Mar. 1 - Oct. 31): ST, PR | ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610765 | 12 | Little Papillion Creek at Ak-Sar-Ben at Omaha | \$1,705 | \$9,840 | | \$11,545 | SR - 8 month (Mar. 1 - Oct. 31): Q, ST, PR | Daily Q and ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610770 | 8 | Big Papillion Creek at Q Street at Omaha | \$3,335 | \$12,830 | | \$16,165 | CR - 12 month: Q, ST; SR - 8 month (Mar. 1 - Oct. 31): PR | Annual daily Q and ST for Oct. 1-Sept. 30. Rain data collected, not published. | |
| 06610773 | 13 | West Papillion Creek at Elkhorn | \$705 | \$4,045 | | \$4,750 | SR - 8 month (Mar. 1 - Oct. 31): ST, PR | ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610780 | 14 | West Papillion Creek at Pacific St at Omaha | \$705 | \$4,045 | | \$4,750 | SR - 8 month (Mar. 1 - Oct. 31): ST, PR | ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610785 | 15 | West Papillion Creek at Millard | \$1,705 | \$9,840 | | \$11,545 | SR - 8 month (Mar. 1 - Oct. 31): Q, ST, PR | Daily Q and ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610786 | 16 | South Papillion Creek near Gretna | \$705 | \$4,045 | | \$4,750 | SR - 8 month (Mar. 1 - Oct. 31): ST, PR | ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610788 | 17 | South Papillion Creek at Chalco | \$1,705 | \$9,840 | | \$11,545 | SR - 8 month (Mar. 1 - Oct. 31): Q, ST, PR | Daily Q and ST for Mar. 1 - Oct. 31. Rain data collected, not published. | |
| 06610793 | 18 | (West) Papillion Creek at Papillion | \$0 | \$9,080 | \$2,465 | \$11,545 | SR - 8 month (Mar. 1 - Oct. 31): Q, ST, PR | Daily Q and ST for Mar. 1 - Oct. 31. Rain data collected, not published. | a |
| 06610795 | 19 | Papillion Creek at Fort Crook | \$0 | \$12,230 | \$3,935 | \$16,165 | CR - 12 month: Q, ST; SR - 8 month (Mar. 1 - Oct. 31): PR | Annual daily Q and ST for Oct. 1-Sept. 30. Rain data collected, not published. | a |
| 411232095584201 | 20 | Rain Gage at Hitchcock Park at Omaha | \$270 | \$1,460 | | \$1,730 | SR - 8 month (Mar. 1 - Oct. 31): PR | Rain data collected, not published. | |
| 411701095570601 | 21 | Rain Gage at City Maintenance Shop at Omaha | \$270 | \$1,460 | | \$1,730 | SR - 8 month (Mar. 1 - Oct. 31): PR | Rain data collected, not published. | |
| Funding partner totals | | | \$16,875 | \$137,450 | \$19,905 | \$174,230 | | | |

a USGS FPS funds used in place of CMF as match with PM NRD