TO: Governance Committee (GC)
FROM: Executive Director's Office (EDO)
SUBJECT: 2016 EDO Technical Series
#04 – Future Mechanical Channel Maintenance Effort and Cost Memo
DATE: August 31, 2016
CC: Technical Advisory Committee (TAC) and Independent Scientific Advisory Committee (ISAC)

Mechanical Channel Maintenance Activities

The primary mechanical channel maintenance activities undertaken by the Platte River Recovery Implementation Program (PRRIP or Program) and associated stakeholders are herbicide control of common reed (*Phragmites australis*; phragmites) and disking of in-channel vegetation. Aerial or airboat application of herbicide is the Program's primary tool for control of invasive riparian plant species like phragmites that negatively impact channel conveyance and habitat suitability for Program target species. Disking of in-channel vegetation is the Program's primary tool for maintaining suitably-wide unobstructed channel widths for whooping crane roosting. As Program implementation progresses, it has become apparent that ongoing use of both of these management tools will be necessary to maintain channel conveyance and suitable target species habitat into the foreseeable future. In absence of in-channel disking, suitable target species habitat may still occur in portions of the Program's Associated Habitat Reach (AHR) under wet hydrologic conditions. In absence of ongoing herbicide control efforts, it is likely that the entire AHR would become unsuitable for target species use within several years.

Mechanical Maintenance during the First Increment

Since 2008, the Program has worked collaboratively with the Platte Valley and West Central Weed Management Areas (PVWMA and WCWMA) as they have led implementation of large-scale herbicide control efforts extending from Lake McConaughy downstream to the Loup River confluence at Columbus. To date, the Program has contributed $1.6 million towards the phragmites control program. Other funds have been provided by the Nebraska Department of Agriculture (NDA), Nebraska Environmental Trust (NET), Central Platte Natural Resources District (NRD), Tri-Basin NRD, Twin Platte NRD, Central Nebraska Public Power and Irrigation District (CNPPID), and Nebraska Public Power District (NPPD). The Nature Conservancy (TNC) has coordinated the effort since inception.

The Program has implemented in-channel disking at Program habitat complexes as necessary and has also entered into management agreements with private landowners and conservation owners to implement management activities on their properties as well. Other agencies and organizations have also historically implemented in-channel disking including the United States Fish and Wildlife Service Partners for Fish and Wildlife, Crane Trust, Audubon Society, TNC, NPPD, and CNPPID. In-channel disking effort in the AHR was high during the drought of the early 2000s, with the USFWS Partners for Fish and Wildlife funding disking in large reaches of the channel in cooperation with conservation and private landowners. Those efforts have decreased substantially during the First Increment. During the same period, effort on Program lands has increased as the Program has determined some amount of disking is necessary at habitat complexes in all but the wettest years in order to maintain suitably-wide unobstructed channel widths for whooping crane roosting.

Phragmites Control Costs

To date, approximately $4 million has been spent on phragmites control efforts. The bulk of non-Program funding for the effort was provided by the NDA, NET, and Central Platte NRD. NDA and NET funds have been fully expended and efforts to secure additional NET funding have been unsuccessful. In 2016, the

Nebraska Legislature appropriated $1 million for invasive weed control to be administered through the NDA but, to date, the associated Riparian Vegetation Taskforce has not been established nor has a process for award of those monies. Remaining phragmites control contributors include the Program, Natural Resources Districts and Public Power Districts. TNC has continued to provide project coordination as an in-kind service but will likely need to step away from that role in the near future.

Average annual phragmites maintenance costs are on the order of $400,000. The Program typically contributes $200,000 with the remaining cash coming from a combination of grant monies and partner organizations with coordination provided by TNC. Grant monies for ongoing phragmites control and project coordination have been exhausted and efforts to secure new grants have been unsuccessful.[1] In 2016, the Program increased its contribution to $300,000 to cover the lack of new grant monies. There may be the potential for limited future grant monies administered through the Riparian Vegetation Task Force[2] but it is unlikely that the NET or Water Sustainability Task Force will be viable funding sources. Accordingly, there is a high potential for future cash shortfalls.

The phragmites control effort is approaching a critical point where a lack of funding and/or coordination may limit the amount of spraying that can be accomplished or result in lapses in annual control efforts. If control efforts in the reach or portions of the reach lapse, it is highly likely that re-infestation of the channel will occur quickly.

Channel Disking Costs

Normal to dry year disking cost is on the order of $3,000 per river mile and the Program budgets approximately $90,000 annually for disking of Program-owned lands and those under management agreements. [3] Based on Program costs, total annual cost for disking within the entire AHR would be on the order of $270,000 in normal to dry years. This would equate to 90 days of disking effort annually for two machines.[4]

The disking work conducted during the early and mid-2000s was instrumental in maintenance of channel width during a historic drought. Without that effort, little suitable whooping crane roosting habitat would likely have been present in the AHR at the beginning of the First Increment of the Program. During the First Increment, basin hydrology has cycled towards wetter conditions but historical data indicate that the basin will likely begin to trend dryer within the next couple of years.[5] Once that occurs, large-scale in-channel disking will once again be necessary to maintain unobstructed channel widths.

Coordination Costs

Many of the partnerships that provided the framework necessary for large-scale management efforts prior to Program implementation are no longer active or are unfunded. In 2013, conservation stakeholders discussed the need for coordination of mechanical management actions in the AHR and attempted to fund a coordinator position as part of the NET grant application for ongoing phragmites control efforts. That grant was submitted in both 2014 and 2015 and was not funded. The annual cost for a coordinator to work with conservation and private landowners in the AHR to implement mechanical management actions is estimated at $75,000.

[1] NET grant applications in 2014 and 2015 were unsuccessful.
[2] Established as part of LB 1038.
[3] $3,000 equates to one full day of work by two machines working in tandem.
[4] Two machines typically work in tandem so that they can assist each other if one machine becomes stuck.
[5] The shift between wet and dry hydrologic conditions typically occurs in the Platte Basin in an approximately 10-year cycle.

Long-Term Mechanical Maintenance Costs

Overall annual cost for phragmites control from Columbus to Lake McConaughy, AHR-wide disking, and coordination of these efforts would be approximately $750,000. Of this total, expenditures of $400,000 for phragmites spraying and $90,000 for disking could be considered mandatory in order to maintain channel conveyance and suitable target species habitat on Program lands.[6] The additional $260,000 would provide for coordination and implementation of mechanical management actions throughout the remainder of the AHR.

Funding of long-term mechanical maintenance could be accomplished through annual obligation of funds through the Program budget process or by establishment of a long-term conservation endowment, which would ensure sustainable implementation. Assuming an annual 3% rate of cost escalation and 4.5% interest rate on fund balance, a 20-year endowment for all AHR maintenance would require $12.7 million contribution, a 30-year endowment would require $18 million, and a 50-year endowment would require $26.7 million.

[6] This assumes that basic coordination of phragmites spraying can occur at no cost.