



PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM (PRRIP -or- Program)

Framing Document – Governance Committee (GC) Agreement on Addressing the Chokepoint During the First Increment Extension and Moving Into the Second Increment

Key Understanding

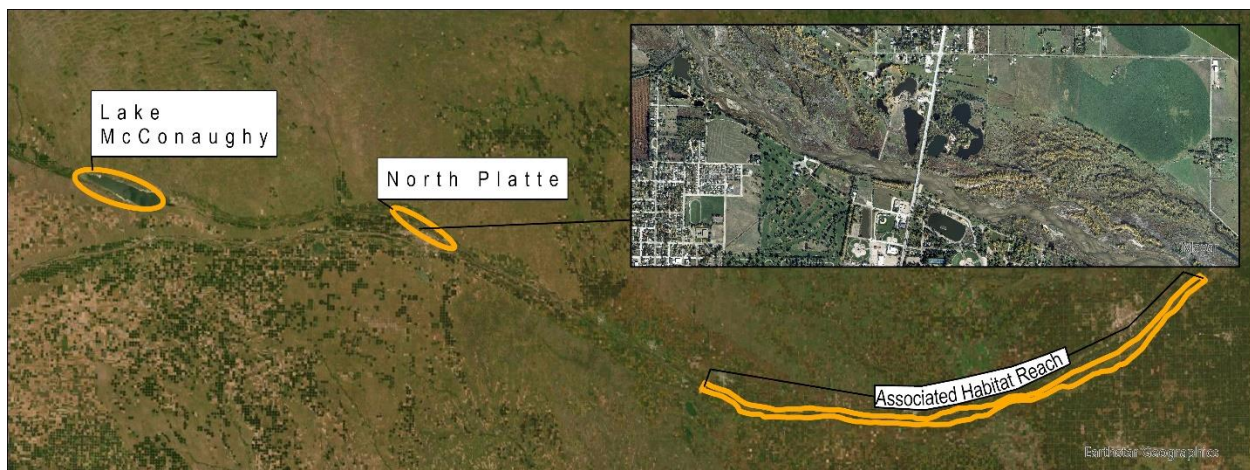
The Program invested considerable resources in studies and construction of flood-proofing projects to increase channel capacity at the chokepoint to 3,000 cfs. These projects eliminated nuisance flooding through North Platte but the NWS declined to increase flood stage, citing groundwater impacts. As such, the chokepoint continues to limit deliveries of EA and Program water during the summer months when irrigation consumes available capacity.

The activities described in this Framing Document are intended to provide technical information necessary for policymakers to evaluate the 3,000 cfs flow capacity requirement and the costs and benefits of additional capital investments to increase the capacity of the North Platte River through the City of North Platte.

Background

The North Platte chokepoint (“chokepoint”) is the reach of the North Platte River extending upstream and downstream of the Highway 83 bridge at the City of North Platte. Flow capacity through this reach declined in recent decades due to diminished peak flows, floodplain development, vegetation encroachment (primarily *Phragmites*), and other factors. This reach is important because it constrains the Program’s ability to deliver water from the Lake McConaughy Environmental Account (EA) to the Associated Habitat Reach (AHR), particularly in drier years when most of the limited flow capacity is utilized to deliver irrigation water.

The 2006 [Program Document](#) (Section III.E.2.d.iii) and the 2017 Addendum to the Program Document (Section II.B) set forth a goal of achieving and maintaining a flow capacity of 3,000 cubic feet per second (cfs) at the chokepoint, with the critical limitation that this be accomplished while remaining below the National Weather Service (NWS) minor flood stage of 6.0 feet (ft).¹ At the time of Program initiation in 2007, flow capacity at minor flood stage was approximately 1,000 cfs. Capacity in 2022 is on the order of 1,770 cfs.



¹ PRRIP Adaptive Management Plan (Program Document, Attachment 3, Section II.A) specifies that “management of Program water will not cause flows above the flood stage as defined by the National Weather Service.”



Early in the First Increment, the Program completed a series of studies, model analyses (both channel hydraulics and sediment transport), and conceptual designs to address flooding issues at the chokepoint, culminating in the completion of two flood-proofing projects that were designed to eliminate the flooding observed at river stages of approximately 6.0 - 7.0 ft. Specifically, the [Whitehorse Creek Drainage Project](#) (2014) involved installation driveway culverts along North River Road to direct stormwater and high groundwater to the east of Highway 83 towards Whitehorse Creek. The [State Channel Berm Rehabilitation](#) (2018) restored a low berm that directs high flows away from the north bank neighborhood towards the main North Platte River channel.

In July 2020, the Program completed a flow test to evaluate the performance of these flood-proofing projects. The flow test demonstrated the projects successfully eliminated flooding along the north bank but NWS declined to raise minor flood stage due primarily to reports of groundwater-related impacts at residences along the south bank upstream of Highway 83. Specific impacts of note included malfunctioning septic systems and water encroaching into storm cellars.

The Program Document stipulates efforts to improve capacity to 3,000 cfs are to continue as long as deemed appropriate by the Governance Committee (GC) or until alternative means of providing similar benefits to the Program's target species are developed. Accordingly, the Executive Director's Office (EDO) and the Chokepoint Planning Workgroup reconvened in 2021 to revisit all First Increment work in an attempt to find an alternative solution. Based on [this review](#), the only alternative guaranteed to permanently eliminate the capacity constraints of the chokepoint would be to construct a large-capacity bypass canal.^{2,3} The EDO revisited the bypass canal concept with the GC in June 2022, noting any large-scale engineering project would likely require use of eminent domain given the number of landowners and individual parcels involved.

GC members including those representing local stakeholders stated they were not supportive of condemning land, citing the Program's Good Neighbor Policy and concerns about damaging relationships with irrigation districts and other entities. ***GC members also questioned the 3,000 cfs flow capacity requirement and whether Extension science might clarify the capacity that is necessary to achieve target species objectives in the AHR. This document sets forth the planned Program science activities and Structured Decision-Making (SDM) process that will attempt to address this question.***

Program Science Activities

The [Extension Science Plan](#) focuses on two water-related uncertainties:

- Ability to implement and effectiveness of germination suppression (summer inundation) flows of ~ 1,500 cfs during the month of June to prevent vegetation encroachment into the channel and maintain suitably wide unobstructed channel widths (UOCW) for whooping crane roosting.
- Role of flow during whooping crane migration in 1) the decision to stop, 2) length of stay, and 3) differences in spring and fall use.

Chokepoint capacity constraints primarily affect the Program's ability to conduct germination suppression releases. Data collected during implementation of partial or full germination suppression

² PRRIP Executive Director's Office. 2021. North Platte Chokepoint Alternatives. Memorandum to North Platte Chokepoint Planning Workgroup, April 6.

³ Unless independent chokepoint investigations by Vision for an Ecologically Resilient Platte River (VESPR) or others identify chokepoint capacity improvements that could be implemented without the need to exercise eminent domain.



releases in 2020, 2021, and 2022 indicate chokepoint capacity constraints often limit our ability to achieve 1,500 cfs in the AHR after mid-June due to irrigation demand. The Executive Director's Office (EDO) developed an Environmental Account (EA) operations model that simulates our ability to implement releases from the EA based on volume, chokepoint capacity constraints, and river gains/losses. That model explicitly incorporates chokepoint capacity constraints and will be refined periodically using data collected during implementation of Program flow releases.

The Program also collects data on the effectiveness of flow (including germination suppression releases), herbicide application, and mechanical management (disking) in both removing vegetation and preventing vegetation from becoming established in the channel. Annual channel response will be evaluated from aerial imagery and LiDAR through our system-wide geomorphology and vegetation monitoring. These data have been used to develop a machine learning model that predicts the ability to create and maintain suitably wide UOCW for whooping crane roosting based on flow, chemical, and mechanical management actions including the summer inundation flow release. This model will be updated and refined as part of a formal analysis of the effectiveness of germination suppression releases that is scheduled to occur in 2024. The results of that analysis will be used to refine flow release implementation with a second formal analysis of effectiveness scheduled for 2028.

To further evaluate the benefits of flow and its contribution to maintaining wide unvegetated channels, the Extension Science Plan includes two five-year check-ins on whooping crane riverine roost site selection criteria that rely on the Program's systematic aerial monitoring data. The importance of flow and unobstructed channel width for predicting whooping crane stopovers, stay length, and seasonal use of the AHR will also be evaluated using telemetry data in addition to systematic Program monitoring. Results of these analyses will provide information on the costs and benefits of flow releases during whooping crane migration and as a tool for channel maintenance.

Structured Decision-Making (SDM)

The revised/refined EA operations and machine learning models will comprise two of several technical tools that will be used to support a 2029 Structured Decision-Making (SDM) process.⁴ The purpose of the SDM process will be to engage the GC in a collaborative effort to evaluate the trade-offs and consequences of various applications of Program resources (land, water, money, learning) to help frame negotiations on the content, boundaries, and defined contributions of the Second Increment. Results of Science Plan implementation during the Extension, including the technical tools described above, will provide the information used to evaluate the Program's ability to implement flow management actions as well as predict response of in-channel vegetation and whooping crane use of the AHR to both flow and mechanical management actions. This includes alternatives that increase ability to convey flow through the chokepoint.

Hypothetical chokepoint-related alternatives may include:

- Concluding that increasing capacity does not contribute significantly to achieving Science Plan management objectives and abandoning efforts to increase capacity.
- Concluding that current capacity is sufficient to achieve Science Plan management objectives and abandoning efforts to increase capacity.

⁴ [Second Increment Policy Frame](#)



- Eliminating or revising Program Document language to disentangle EA release rules from NWS minor flood stage – which is a subjective threshold encompassing a multitude of impacts that are not the result of surface water flooding.
- Eliminating or revising Program Document language to allow participation in flood-control/mitigation projects that require the use of eminent domain in anticipation of implementing a capital improvement project to increase chokepoint capacity to 3,000 cfs.
- The Program may also find that a small incremental increase in chokepoint capacity is warranted and could explore alternatives that would increase capacity without requiring either a change in Program Document language or the need to use eminent domain.

These alternatives and others would be explored within the larger context of Second Increment negotiations that will be constrained by defined contributions from Signatories.

Moving Forward – Chokepoint Focus During the Extension

As described above, the Program has largely exhausted its ability to improve chokepoint capacity under current implementation constraints and under the current boundaries of language in the Program Document. As such, the EDO intends to focus on the science implementation activities described above and will not pursue additional capacity improvements during the remainder of the Extension. One exception relates to the ongoing implementation of an independent review of past chokepoint work by Vision for an Ecologically Resilient Platte River (VESPR). If that effort or others identify chokepoint capacity improvements that could be implemented without the need to exercise eminent domain or without amendment to language in the Program Document, the EDO would bring them before the GC with a plan for further consideration.